



Resanction Request

Civil contractor

- Contractor bids were higher than estimated, even though lowest bidder was selected for the contract
- Additional physical protection was required for energized cables during vault demolition
- The City of Providence required road repairs that were not part of original scope
- The work site was adjacent to a Federal Courthouse. General Services Administration (GSA) required that all loud construction activities such as driving steel sheets, jackhammering, etc., be done at times when there were no trials. To maintain a productive construction schedule, this work was done at night causing higher labor rates.
- Increased footprint for site fencing was required by sensitivity of Federal Courthouse/GSA to potential security issues
- Winter conditions adders

Environmental remediation (demolition/removal)

- The work site was adjacent to Federal Courthouse. GSA required that all loud demolition and removal activities be done at times when there were no trials. To maintain a productive construction schedule, this work was done at night.

2.7 If cost > approved Business Plan how will this be funded?

Reallocation of funds within the portfolio has been managed by Resource Planning to meet jurisdictional, budgetary, statutory and regulatory requirements.

2.8 Key Milestones

Milestone	Target Date: (Month/Year)
Partial Sanction	May 2009
Project Sanction	March 2014
Re-Sanction	May 2017
Construction Complete	June 2017

2.9 Next Planned Sanction Review

Date (Month/Year)	Purpose of Sanction Review
September 2017	Closure Paper



Resanction Request

3 Statements of Support

3.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Investment Planning	Glen Diconza	Endorses relative to distribution 5-year plan or emergent work
Resource Planning	Anne Wyman	Endorses Resources, cost estimate, schedule, and Portfolio Alignment
Distribution Asset Management	Alan Labarre	Endorses scope, design, conformance with design standards

3.2 Reviewers

The reviewers have provided feedback on the content/language of the paper

Function	Individual
Finance	Patricia Easterly
Regulatory	Peter Zschokke
Jurisdictional	Sonny Anand
Procurement	Art Curran
Control Center	Mike Gallagher



Resanction Request

4 Decisions

I:

- (a) APPROVE this paper and the investment of \$1.497M and a tolerance of +/- 10%
- (b) NOTE that Heather L. Moran is the Program Manager and has the approved financial delegation.

Signature.....*ck*.....Date.....*5/2/17*.....
Executive Sponsor – Christopher Kelly, SVP of Electric Process and Engineering



Resanction Request

5 Appendices

NA

C033535

Johnston Sub 12.47 kV Expansion

5360-Narragansett Electric and Gas Project Revision Detail Report

Fund Project Number: <u>C033535</u>	USSC #: <u>USSC0110W259 v3C</u>
Revision: <u>12</u>	Budget Version:
Project Title: <u>Johnston Sub 12.47 kV Expansion</u>	
Project Description: Johnston Sub 12.47 kV Expansion of New yard	

Project Status: <u>Closed</u>	
Responsible Person: <u>HURLEY, KATHLEEN</u>	Initiator: <u>Karzenski, Wayne</u>
Spending Rationale: <u>System Capacity & Performance</u>	Funding Type: <u>P Electric Distribution Sub RI</u>
Budget Class: <u>Load Relief</u>	
Capital by Category:	
Program Code:	
Project Risk Score: <u>35</u>	Project Complexity Score: <u>23</u>

Project Schedule / Expenditures

Revision Status: <u>Approved</u>	
Est Start Date: <u>9/3/2009</u>	Est Complete Date: <u>9/30/2015</u>
Est In-Service Date: <u>9/30/2015</u>	
TTD Actuals: <u>\$4,788,681</u>	As Of: <u>10/2/2017</u>
Cost Breakdown	
<u>Capital</u>	<u>Expense</u>
<u>\$4,579,000</u>	<u>\$10,000</u>
<u>Removal</u>	<u>Total</u>
<u>\$200,000</u>	<u>\$4,789,000</u>
	<u>Credits</u>
	<u>\$0</u>

Justification / Risk Identification:

This project is being moved forward because of the failure of the #2 Transformer at Johnston and the subsequent loss of 12.47 kV supply to the old switchgear.

Initial strategy request is for preliminary engineering only. Project will be submitted for sanction approval following preliminary engineering.

Project Scope:

The new bus at Johnston was build with the expectation that all feeders would eventually be relocated to it. The old 12.47 kV utilized obsolete equipment that would eventually need to be replaced. Failure of the #2 transformer has expedited the need for transition to the new switchgear.

Project Alternatives Considered:

<Enter data here>

Additional Notes:

Related Projects:

Project Number:

Project Name:

Approvals

Line 1:	Date	<u>1/28/2017 18:27:25</u>	Approver	<u>carlim</u>	<u>USSC Approver</u>
Line 2:	Date		Approver		
Line 3:	Date		Approver		
Line 4:	Date		Approver		
Line 5:	Date		Approver		

*****Project Authorization is for Approved Revision Total Estimated Cost +10%*****

REDACTED - CEII Information has been Redacted

File Edit Subsystem Batch Admin Preferences Window Help

Projects Assets Tables CR MyPPlan Help Calc Print Win

Funding Project Estimates - Summary C033535 Current Total Authorized Amount: \$4,78...

Title **Johnston Sub 12.47 kV Expansion**

Project Number C033535

Budget Version No Assigned Versions

Revision Closure

Revision Status Approved

Revision No. 12

Est Start Date 09/03/2009

Est Complete Date 09/30/2015

Est In Svc Date 09/30/2015

Capital \$4,579,000.00

Expense \$10,000.00

Jobbing \$0.00

Retirement \$0.00

Removal \$200,000.00

Total (excl. Rets.) \$4,789,000.00

Credits \$0.00

Net \$4,789,000.00

Revision Info Other Updates

Revision 12 of 12 [K] < > >|

[Find Revision](#) Send for Approval

Show 'Budget Only' Revisions

Spending Estimates:

Grid Estimates

Forecast

Summarize from W/O

Copy Estimate

Edit:

New Revision

Delete Revision

Update

Update With Actuals

Import Estimates

Version Compare

Property Estimates:

Unit Estimates

Create As Built

Delete Used Estimates

Other:

Revision Comments

Released Dollars

Substitution

Slide

Close

Record 1 of 1 [K] < > >|

Audits

This document has been reviewed for Critical Energy Infrastructure Information (CEII). 1/26/2017



USSC Closure Paper

Title:	Johnston #18 Substation	Sanction Paper #:	USSC0110W259 v3C
Project #:	C033535, C034002, C028884, C036072	Sanction Type:	Closure
Operating Company:	The Narragansett Electric Co.	Date of Request:	January 11, 2017
Author:	Kathleen Hurley	Sponsor:	Carol Sedewitz, VP Electric Asset Management
Utility Service:	Electricity T&D	Project Manager:	Kathleen Hurley

1 Executive Summary

This paper is presented to close the Johnston #18 Substation Project, the funding numbers consists of: C033535, C034002, C028884 and C036072. The total spend was \$8.203M. The latest sanctioned amount for this project was \$8.138M.

The original requested sanction amount was \$7.345M.

The final spend amount is \$8.203M broken down into:
 \$6.515M Capex
 \$0.078M Opex
 \$0.752M Removal

2 Project Summary

This project replaced the No. 3 Transformer at the Johnston Substation, installed three feeder positions and retired and removed all equipment in the old 12.47 kV substation.

The project consisted of the following activities:

- Completed a 3rd bay by adding a second feeder position, this consisted of a feeder breaker, regulators, switches, relays, control and other associated equipment.
- Added a 4th and 5th bay consisting of a tie breaker and two feeder positions.
- Added two substation capacitor banks.
- Installed the underground ducts and cables to the new feeder position.
- Replaced the existing No.3 Transformer with a newer unit rated at 33/44/55 MVA.
- Retired and removed all equipment in the old 12.47 kV substation.

USSC Closure Paper



3 Over / Under Expenditure Analysis

3.1 Summary Table

Actual Spending (\$M)			
Project #	Description		Total Spend
C033535	Johnston Substation Work and Retirement of the old Substation	Capex	4.579
		Opex	0.010
		Removal	0.200
		Total	4.789
Project #	Description		Total Spend
C034002	Johnston Sub 12kV Expansion Getaways	Capex	0.317
		Opex	0.007
		Removal	0.016
		Total	0.340
Project #	Description		Total Spend
C028884	Johnston 18F10 Feeder Installation	Capex	0.848
		Opex	0.067
		Removal	0.164
		Total	1.079
Project #	Description		Total Spend
C036072	Johnson T#3 Replacement	Capex	1.989
		Opex	0.005
		Removal	0.001
		Total	1.995
Total		Capex	7.733
		Opex	0.089
		Removal	0.381
		Total	8.203



USSC Closure Paper

Project Sanction Summary Table			
Project Sanction Approval (\$M)			Total Spend
		Capex	6.515
		Opex	0.078
		Removal	0.752
		Total Cost	7.345
Sanction Variance (\$M)			Total Spend
		Capex	(1.218)
		Opex	(0.011)
		Removal	0.371
		Total Variance	(0.858)

3.2 Analysis

The original design called for removing all protection on the 13kV tertiary winding because all load was being removed from that winding. However, because it is a delta winding, a ground fault protection was required to detect ground faults on the 13kV winding.

This issue was caught in the field, reviewed by the team and was added to the scope after the design and estimate had been approved. A PCR was created for this change.

4 Improvements / Lessons Learned

Lessons Learned: The original design called for removing all protection on the 13kV tertiary winding because all load was being removed from that winding. However, because it is a delta winding, ground fault protection was required. This issue was caught in the field, reviewed by the team and added to the scope after the design and estimate had been approved.

A thorough design review including input from all team members should be held prior to issuing for construction to prevent any potential design work from being overlooked or omitted prior to the construction phase.

Please refer to ID #480 in the Lessons Learned Database.

5 Closeout Activities

The following closeout activities have been completed.

Activity	Completed
All work has been completed in accordance with all National Grid policies	<input checked="" type="radio"/> Yes <input type="radio"/> N/A



USSC Closure Paper

All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All work orders and funding projects have been closed	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All as-builts have been completed	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All lessons learned have been entered appropriately into the lesson learned database	<input checked="" type="radio"/> Yes <input type="radio"/> N/A

6 Statements of Support

6.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Investment Planning	DiConza, Glen/ Park, Michelle	Endorses relative to 5-year business plan or emergent work
Resource Planning	Wyman, Anne/ Philips, Mark	Endorses construction resources, cost estimate, schedule, and portfolio alignment
Asset Management / Planning	Hayduk, Brian/ Labarre, Alan T.	Endorses scope, estimate, and schedule with the company's goals, strategies, and objectives
Engineering and Design	Martuscello, Suzan E.	Endorses scope, design, conformance with design standards
Project Management	Schneller, Andrew	Endorses resources, cost estimate, schedule
Electric Project Estimation	Simonds, Jammie	Endorses Cost Estimate

6.2 Reviewers

The reviewers have provided feedback on the content/language of the paper.

Function	Individual
Finance	Easterly Patricia/Helm, Richard
Regulatory	Zschokke, Peter

USSC Closure Paper



Jurisdictional Delegate(s)	Patterson Jim/ Terron Hill
Procurement	Curran, Art
Control Centers (CC)	Gallagher Michael Houston, Will

USSC Closure Paper



7 Decisions

The US Sanctioning Committee (USSC) approved this paper at a USSC meeting held on January 11, 2017.

Signature..... *Ch. K.*Date..... *1/23/17*

Christopher Kelly
Acting Senior Vice President Electric Process and Engineering

C034002

Johnston Sub 12kV Expansion Getawa.

5360-Narragansett Electric and Gas Project Revision Detail Report

Fund Project Number: <u>C034002</u>	USSC #: <u>USSC0110W259 v3C</u>
Revision: <u>9</u>	Budget Version:
Project Title: <u>Johnston Sub 12kV Expansion Getawa.</u>	
Project Description: Johnston Sub 12.47 kV Epansion Getaways	

Project Status: <u>Closed</u>	
Responsible Person: <u>HURLEY, KATHLEEN</u>	Initiator: <u>Karzenski, Wayne</u>
Spending Rationale: <u>System Capacity & Performance</u>	Funding Type: <u>P Electric Distribution Line R1</u>
Budget Class: <u>Load Relief</u>	
Capital by Category:	
Program Code:	
Project Risk Score: <u>35</u>	Project Complexity Score: <u>23</u>

Project Schedule / Expenditures

Revision Status: <u>Approved</u>					
Est Start Date: <u>2/1/2009</u>			Est Complete Date: <u>9/30/2015</u>		
Est In-Service Date: <u>9/30/2015</u>					
TTD Actuals: <u>\$339,909</u>			As Of: <u>10/2/2017</u>		
Cost Breakdown	<u>Capital</u>	<u>Expense</u>	<u>Removal</u>	<u>Total</u>	<u>Credits</u>
	<u>\$317,000</u>	<u>\$7,000</u>	<u>\$16,000</u>	<u>\$340,000</u>	<u>\$0</u>

Justification / Risk Identification:

This is an associated project to C33535 for the relocation of feeder from the old 12 kV switchgear to the new switchgear. It will cover the underground getaway relocation cost. The failure of the 3- winding Johnston #2 transformer eliminated one of two supplies to the old Johnston 12.47 kV switchgear. A tie to the new 12.47 switchgear has been built to temporarily support the load. The recommended plan is to relocate the 3 remaining feeder to the new 12.47 kV switchgear.

Project Scope:

<Enter data here>

Project Alternatives Considered:

<Enter data here>

Additional Notes:

Total DOA \$0.0695M over 4 projects 4443,3435,4415 and DxT 4442.

USSC0110W259 v2: C036072 \$1.000M; C033535 \$290K; C034002 \$260K; C028884 \$720K.

Related Projects:

Project Number:

Project Name:

Approvals

Line 1:	Date	<u>1/28/2017 18:27:29</u>	Approver	<u>carlim</u>	<u>USSC Approver</u>
Line 2:	Date		Approver		
Line 3:	Date		Approver		
Line 4:	Date		Approver		
Line 5:	Date		Approver		

*****Project Authorization is for Approved Revision Total Estimated Cost +10%*****

REDACTED - CEII Information has been Redacted

PowerPlan ----- PPGPRD Database

File Edit Subsystem Batch Admin Preferences Window Help

Projects Assets Tables CR MyPPlan Help Calc Print Win

Funding Project Estimates - Summary C034002 Current Total Authorized Amount: \$340,...

Title Johnston Sub 12kV Expansion Getawa.
Project Number C034002

Budget Version	No Assigned Versions
Revision	Closure
Revision Status	Approved
Revision No.	9
Est Start Date	02/01/2009
Est Complete Date	09/30/2015
Est In Srvc Date	09/30/2015
Capital	\$317,000.00
Expense	\$7,000.00
Jobbing	\$0.00
Retirement	\$0.00
Removal	\$16,000.00
Total (excl. Rets.)	\$340,000.00
Credits	\$0.00
Net	\$340,000.00

Revision Info Other Updates

Revision 9 of 9
[Find Revision](#)

Show 'Budget Only' Revisions

Spending Estimates:

Property Estimates:

Edit:

Other:

Record 1 of 1

This document has been reviewed for Critical Energy Infrastructure Information (CEII). 1/26/2017



USSC Closure Paper

Title:	Johnston #18 Substation	Sanction Paper #:	USSC0110W259 v3C
Project #:	C033535, C034002, C028884, C036072	Sanction Type:	Closure
Operating Company:	The Narragansett Electric Co.	Date of Request:	January 11, 2017
Author:	Kathleen Hurley	Sponsor:	Carol Sedewitz, VP Electric Asset Management
Utility Service:	Electricity T&D	Project Manager:	Kathleen Hurley

1 Executive Summary

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The original requested sanction amount was \$7.345M.

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USSC Closure Paper



3 Over / Under Expenditure Analysis

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		Opex	0.005
		Removal	0.001
		Total	1.995
Total		Capex	7.733
		Opex	0.089
		Removal	0.381
		Total	8.203



USSC Closure Paper

Project Sanction Summary Table			
Project Sanction Approval (\$M)			Total Spend
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		Capex	(1.218)
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The original design called for removing all protection on the 13kV tertiary winding because all load was being removed from that winding. However, because it is a delta winding, a ground fault protection was required to detect ground faults on the 13kV winding.

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Please refer to ID #480 in the Lessons Learned Database.

5 Closeout Activities

The following closeout activities have been completed.

Activity	Completed
All work has been completed in accordance with all National Grid policies	<input checked="" type="radio"/> Yes <input type="radio"/> N/A



USSC Closure Paper

All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All work orders and funding projects have been closed	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All as-builts have been completed	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All lessons learned have been entered appropriately into the lesson learned database	<input checked="" type="radio"/> Yes <input type="radio"/> N/A

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The supporters listed have aligned their part of the business to support the project.

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Function	Individual
Finance	Easterly Patricia/Helm, Richard
Regulatory	Zschokke, Peter

USSC Closure Paper



Jurisdictional Delegate(s)	Patterson Jim/ Terron Hill
Procurement	Curran, Art
Control Centers (CC)	Gallagher Michael Houston, Will

USSC Closure Paper



7 Decisions

The US Sanctioning Committee (USSC) approved this paper at a USSC meeting held on January 11, 2017.

Signature..... *Ch. K.*Date..... *1/23/17*

Christopher Kelly
Acting Senior Vice President Electric Process and Engineering

C035087

DOTR-Apponaug Circulator Imprv Warw

REDACTED - CEII Information has been Redacted

PowerPlan ----- PPGPRD Database

File Edit Subsystem Batch Admin Preferences Window Help

Projects Assets Tables CR MyPPlan Help Calc Print Win

Funding Project Estimates - Summary C035087 Current Total Authorized Amount: \$1,87...

Title:
 Project Number:

Budget Version	Default [active]
Revision	14-073
Revision Status	Approved
Revision No.	5
Est Start Date	01/28/2010
Est Complete Date	04/30/2018
Est In Srvc Date	10/31/2017
Capital	\$1,213,000.00
Expense	\$144,000.00
Jobbing	\$0.00
Retirement	\$0.00
Removal	\$522,000.00
Total (excl. Ret.)	\$1,879,000.00
Credits	\$0.00
Net	\$1,879,000.00

Revision Info:

Revision: of 5
[Find Revision](#)

Show 'Budget Only' Revisions

Spending Estimates:

Property Estimates:

Edit:

Other:

Record of 1

D



Short Form Sanction Paper

Title:	RI DOT Apponaug Circulator Longterm Improvements, Warwick	Sanction Paper #:	USSC-14-073
Project #:	C035087	Sanction Type:	Sanction
Operating Company:	The Narragansett Electric Co.	Date of Request:	3/31/14
Author:	Thomas Capobianco	Sponsor:	Cheryl A. Warren – Vice President Asset Management
Utility Service:	Electricity T&D	Project Manager:	Thomas Capobianco

1 Executive Summary

1.1 Sanctioning Summary

This paper requests sanction of C035087 in the amount \$1.879M with a tolerance of +/- 10% for the purposes of Final Engineering, Procurement of Material, Procurement of Civil and Substation Fence contractors, and the start of construction.

This sanction amount is \$1.879M broken down into:

- \$1.183M Capex
- \$0.144M Opex
- \$0.552M Removal
- With Reimbursement of \$1.879M (100%)

1.2 Project Summary

The State of Rhode Island received federal funding for improvements to Apponaug Circulator. RI DOT work includes but is not limited to construction of five (5) new roundabouts, the construction of a new roadway (Veterans Memorial Drive Extension), conversion of roadways from one-way traffic to two-way traffic; relocation of Apponaug River, and Apponaug Mill Bridge No. 138 reconstruction. This RI DOT sponsored project is the primary driver of this work and is 100% reimbursable.

2 Project Detail

RI DOT has proposed 6 construction phases to accommodate circulator reconstruction. There are 98 pole relocations. This project will fund the associated distribution line work for these 98 pole relocations.



Short Form Sanction Paper

The scope of the civil work will involve primary riser relocation at Pole # 13-75 Diamond Hill Road for a commercial building.

The scope of the substation fence contractor will involve a temporary and permanent relocation of approximately 195 feet of Apponaug Substation fence to accommodate roadway reconstruction.

2.1 Background

National Grid currently has the 3F1, 3F2, 14F1, 14F2, 22F2 overhead distribution circuits and 2262 and 2264 overhead distribution supply circuits impacted by RI DOT circulator construction.

2.2 Drivers

The driver for this project is RI DOT.

2.3 Project Description

National Grid's work is divided between 11 work requests based on proposed 6 construction phases. RI DOT and their construction contractor to determine our sequence of construction for these work requests.

2.4 Benefits

Not Applicable

2.5 Business & Customer Issues

Customer outages may be required for various pole relocations.

2.6 Alternatives

Alternative 1:

This project is mandatory. There are no viable alternatives to the proposed project.

2.7 Investment Recovery

This project is federally funded and is 100% reimbursable. RI DOT will be reimbursing National Grid.

2.7.1 Customer Impact

This project is being fully reimbursed by the RI DOT and is not expected to increase the company's revenue requirement.



Short Form Sanction Paper

3 Related Projects, Scoring, Budgets

3.1 Summary of Projects

Project Number	Project Type (Elec only)	Project Title	Estimate Amount (\$M)
C035087	D-Line	RI DOT Apponaug Circulator Longterm Improve	1.879
Total			1.879

3.2 Associated Projects

Not Applicable.

3.3 Prior Sanctioning History

Describe previous sanctions for the projects included in the scope of this paper (Newest to Oldest).

Date	Governance Body	Sanctioned Amount	Paper Title	Sanction Type
1/29/2010	Powerplant DOA (<1M)	\$70k for pre-engineering	DOTR-Apponaug Circulator Imprv Warw	Design only

3.4 Category

Category	Reference to Mandate, Policy, or NPV Assumptions
<input checked="" type="radio"/> Mandatory	State mandated obligation
<input type="radio"/> Policy- Driven	
<input type="radio"/> Justified NPV	

3.5 Asset Management Risk Score

Asset Management Risk Score: 49

Primary Risk Score Driver: (Policy Driven Projects Only)

- Reliability
 Environment
 Health & Safety
 Not Policy Driven



Short Form Sanction Paper

3.6 Complexity Level

High Complexity Medium Complexity Low Complexity N/A

Complexity Score: 18

4 Financial

4.1 Business Plan

Business Plan Name & Period	Project included in approved Business Plan?	Over / Under Business Plan	Project Cost relative to approved Business Plan (\$)
Mandatory Public Requirement	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input checked="" type="radio"/> Over <input type="radio"/> Under <input type="radio"/> NA	0.367

4.1.1 If cost > approved Business Plan how will this be funded?

Re-allocation of funds within the portfolio will be managed by Resource Planning to meet jurisdictional budgetary, statutory, and regulatory requirements.

4.2 CIAC / Reimbursement

\$M	Prior Yrs	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	Total
		2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	
CIAC/Reimbursement	0.000	0.800	0.720	0.359	0.000	0.000	0.000	1.879

4.3 Cost Summary Table

Project Number	Project Title	Project Estimate Level (%)	Spend	Prior Yrs	Current Planning Horizon (\$M)						Total
					Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
C035087	RI DOT Apponaug Circulator Longterm Improvements, Warwick	Est Lvl (e.g. +/- 10%)	CapEx	0.078	0.504	0.504	0.127	-	-	-	1.213
			OpEx	-	0.064	0.064	0.016	-	-	-	0.144
			Removal	-	0.232	0.232	0.058	-	-	-	0.522
			Total	0.078	0.800	0.800	0.201	-	-	-	1.879
Total Project Sanction			CapEx	0.078	0.504	0.504	0.127	-	-	-	1.213
			OpEx	-	0.064	0.064	0.016	-	-	-	0.144
			Removal	-	0.232	0.232	0.058	-	-	-	0.522
			Total	0.078	0.800	0.800	0.201	-	-	-	1.879



Short Form Sanction Paper

4.4 Project Budget Summary Table

\$M	Prior Yrs (Actual)	Current Planning Horizon (\$M)						Total
		Yr. 1 2014/15	Yr. 2 2015/16	Yr. 3 2016/17	Yr. 4 2017/18	Yr. 5 2018/19	Yr. 6 + 2019/20	
CapEx	0.078	0.450	0.282	0.215	0.000	0.000	0.000	1.025
OpEx	0.000	0.113	0.042	0.032	0.000	0.000	0.000	0.187
Removal	0.000	0.225	0.042	0.032	0.000	0.000	0.000	0.300
Total Cost in Bus. Plan	0.078	0.788	0.367	0.280	0.000	0.000	0.000	1.512

Variance (Business Plan-Project Estimate)

\$M	Prior Yrs (Actual)	Current Planning Horizon (\$M)						Total
		Yr. 1 2014/15	Yr. 2 2015/16	Yr. 3 2016/17	Yr. 4 2017/18	Yr. 5 2018/19	Yr. 6 + 2019/20	
CapEx	0.000	(0.054)	(0.222)	0.088	0.000	0.000	0.000	(0.188)
OpEx	0.000	0.049	(0.022)	0.016	0.000	0.000	0.000	0.043
Removal	0.000	(0.007)	(0.190)	(0.026)	0.000	0.000	0.000	(0.223)
Total Cost in Bus. Plan	0.000	(0.013)	(0.433)	0.078	0.000	0.000	0.000	(0.367)

5 Key Milestones

Milestone	Target Date: (Month/Year)
Engineering Design Complete (EDC)	2/2014
Project Sanction	3/2014
Construction Start	4/2014
Construction Complete	10/2017
Project Closure Sanction	4/2018

6 Statements of Support

6.1.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Role	Individual	Responsibilities
Investment Planner	Glen DiConza	Distribution – New England
Resource Planning	Jim Patterson	Distribution – New England
Engineering and Design	Al Labarre	Distribution Line Planning
Project Management	Timothy Moore	T&D Line NE

6.1.2 Reviewers

The reviewers have provided feedback on the content/language of the paper.

Reviewer List	Individual
Finance	Keith Fowler
Regulatory	Peter Zschokke
Jurisdictional Delegates	Jennifer L. Grimsley
Procurement	Art Curran
Control Centers (CC)	Michael Gallagher

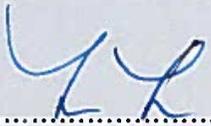


Short Form Sanction Paper

7 Decisions

I:

- (a) APPROVE this paper and the investment of \$1.879M and a tolerance of +/-10%
- (b) NOTE that Thomas Capobianco is the Project Manager and has the approved financial delegation.

Signature..........Date.....

Marie Jordan
Senior Vice-President, Network Strategy



Short Form Sanction Paper

8 Other Appendices



8.1 Sanction Request Breakdown by Project

Not Applicable.

C036072

Johnston #18 Substation Expansion

5360-Narragansett Electric and Gas Project Revision Detail Report

Fund Project Number: <u>C036072</u>	USSC #: <u>USSC0110W259 v3C</u>
Revision: <u>7</u>	Budget Version:
Project Title: <u>Johnston #18 Substation Expansion</u>	
Project Description: Johnston #18 Substation Expansion	

Project Status: <u>Closed</u>	
Responsible Person: <u>HURLEY, KATHLEEN</u>	Initiator: <u>Soko, Soma Ghorai</u>
Spending Rationale: <u>System Capacity & Performance</u>	Funding Type: <u>P Dist by Transmission Sub RI</u>
Budget Class: <u>Load Relief</u>	
Capital by Category:	
Program Code:	
Project Risk Score: <u>35</u>	Project Complexity Score: <u>23</u>

Project Schedule / Expenditures

Revision Status: <u>Approved</u>					
Est Start Date: <u>8/1/2010</u>			Est Complete Date: <u>9/30/2015</u>		
Est In-Service Date: <u>9/30/2015</u>					
TTD Actuals: <u>\$1,994,316</u>			As Of: <u>10/2/2017</u>		
Cost Breakdown	<u>Capital</u>	<u>Expense</u>	<u>Removal</u>	<u>Total</u>	<u>Credits</u>
	<u>\$1,989,000</u>	<u>\$5,000</u>	<u>\$1,000</u>	<u>\$1,995,000</u>	<u>\$0</u>

Justification / Risk Identification:
 <Enter data here>

Project Scope:
 Johnston #18 Substation Expansion

Project Alternatives Considered:

<Enter data here>

Additional Notes:

Related Projects:

Project Number:

Project Name:

Approvals

Line 1:	Date	<u>1/30/2017 07:52:13</u>	Approver	<u>carlim</u>	<u>USSC Approver</u>
Line 2:	Date		Approver		
Line 3:	Date		Approver		
Line 4:	Date		Approver		
Line 5:	Date		Approver		

*****Project Authorization is for Approved Revision Total Estimated Cost +10%*****

REDACTED - CEII Information has been Redacted

PowerPlan ----- PPGPRD Database

File Edit Subsystem Batch Admin Preferences Window Help

Projects Assets Tables CR MyPPlan Help Calc Print Win

Funding Project Estimates - Summary C036072 Current Total Authorized Amount: \$1,99...

Title
Project Number

Budget Version	No Assigned Versions
Revision	Closure
Revision Status	Approved
Revision No.	<input type="text" value="7"/>
Est Start Date	08/01/2010
Est Complete Date	09/30/2015
Est In Srvc Date	09/30/2015
Capital	\$1,989,000.00
Expense	\$5,000.00
Jobbing	\$0.00
Retirement	\$0.00
Removal	\$1,000.00
Total (excl. Ret.)	\$1,995,000.00
Credits	\$0.00
Net	\$1,995,000.00

Revision Info

Revision of 7

[Find Revision](#)

Show 'Budget Only' Revisions

Spending Estimates:

Property Estimates:

Edit:

Other:

Record of 1

This document has been reviewed for Critical Energy Infrastructure Information (CEII). 1/26/2017



USSC Closure Paper

Title:	Johnston #18 Substation	Sanction Paper #:	USSC0110W259 v3C
Project #:	C033535, C034002, C028884, C036072	Sanction Type:	Closure
Operating Company:	The Narragansett Electric Co.	Date of Request:	January 11, 2017
Author:	Kathleen Hurley	Sponsor:	Carol Sedewitz, VP Electric Asset Management
Utility Service:	Electricity T&D	Project Manager:	Kathleen Hurley

1 Executive Summary

This paper is presented to close the Johnston #18 Substation Project, the funding numbers consists of: C033535, C034002, C028884 and C036072. The total spend was \$8.203M. The latest sanctioned amount for this project was \$8.138M.

The original requested sanction amount was \$7.345M.

The final spend amount is \$8.203M broken down into:
 \$6.515M Capex
 \$0.078M Opex
 \$0.752M Removal

2 Project Summary

This project replaced the No. 3 Transformer at the Johnston Substation, installed three feeder positions and retired and removed all equipment in the old 12.47 kV substation.

The project consisted of the following activities:

- Completed a 3rd bay by adding a second feeder position, this consisted of a feeder breaker, regulators, switches, relays, control and other associated equipment.
- Added a 4th and 5th bay consisting of a tie breaker and two feeder positions.
- Added two substation capacitor banks.
- Installed the underground ducts and cables to the new feeder position.
- Replaced the existing No.3 Transformer with a newer unit rated at 33/44/55 MVA.
- Retired and removed all equipment in the old 12.47 kV substation.

USSC Closure Paper



3 Over / Under Expenditure Analysis

3.1 Summary Table

Actual Spending (\$M)			
Project #	Description		Total Spend
C033535	Johnston Substation Work and Retirement of the old Substation	Capex	4.579
		Opex	0.010
		Removal	0.200
		Total	4.789
Project #	Description		Total Spend
C034002	Johnston Sub 12kV Expansion Getaways	Capex	0.317
		Opex	0.007
		Removal	0.016
		Total	0.340
Project #	Description		Total Spend
C028884	Johnston 18F10 Feeder Installation	Capex	0.848
		Opex	0.067
		Removal	0.164
		Total	1.079
Project #	Description		Total Spend
C036072	Johnson T#3 Replacement	Capex	1.989
		Opex	0.005
		Removal	0.001
		Total	1.995
Total		Capex	7.733
		Opex	0.089
		Removal	0.381
		Total	8.203



USSC Closure Paper

Project Sanction Summary Table			
Project Sanction Approval (\$M)			Total Spend
		Capex	6.515
		Opex	0.078
		Removal	0.752
		Total Cost	7.345
Sanction Variance (\$M)			Total Spend
		Capex	(1.218)
		Opex	(0.011)
		Removal	0.371
		Total Variance	(0.858)

3.2 Analysis

The original design called for removing all protection on the 13kV tertiary winding because all load was being removed from that winding. However, because it is a delta winding, a ground fault protection was required to detect ground faults on the 13kV winding.

This issue was caught in the field, reviewed by the team and was added to the scope after the design and estimate had been approved. A PCR was created for this change.

4 Improvements / Lessons Learned

Lessons Learned: The original design called for removing all protection on the 13kV tertiary winding because all load was being removed from that winding. However, because it is a delta winding, ground fault protection was required. This issue was caught in the field, reviewed by the team and added to the scope after the design and estimate had been approved.

A thorough design review including input from all team members should be held prior to issuing for construction to prevent any potential design work from being overlooked or omitted prior to the construction phase.

Please refer to ID #480 in the Lessons Learned Database.

5 Closeout Activities

The following closeout activities have been completed.

Activity	Completed
All work has been completed in accordance with all National Grid policies	<input checked="" type="radio"/> Yes <input type="radio"/> N/A



USSC Closure Paper

All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All work orders and funding projects have been closed	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All as-builts have been completed	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All lessons learned have been entered appropriately into the lesson learned database	<input checked="" type="radio"/> Yes <input type="radio"/> N/A

6 Statements of Support

6.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Investment Planning	DiConza, Glen/ Park, Michelle	Endorses relative to 5-year business plan or emergent work
Resource Planning	Wyman, Anne/ Philips, Mark	Endorses construction resources, cost estimate, schedule, and portfolio alignment
Asset Management / Planning	Hayduk, Brian/ Labarre, Alan T.	Endorses scope, estimate, and schedule with the company's goals, strategies, and objectives
Engineering and Design	Martuscello, Suzan E.	Endorses scope, design, conformance with design standards
Project Management	Schneller, Andrew	Endorses resources, cost estimate, schedule
Electric Project Estimation	Simonds, Jammie	Endorses Cost Estimate

6.2 Reviewers

The reviewers have provided feedback on the content/language of the paper.

Function	Individual
Finance	Easterly Patricia/Helm, Richard
Regulatory	Zschokke, Peter

USSC Closure Paper



Jurisdictional Delegate(s)	Patterson Jim/ Terron Hill
Procurement	Curran, Art
Control Centers (CC)	Gallagher Michael Houston, Will

USSC Closure Paper



7 Decisions

The US Sanctioning Committee (USSC) approved this paper at a USSC meeting held on January 11, 2017.

Signature..... *Ch. K.*Date..... *1/23/17*

Christopher Kelly
Acting Senior Vice President Electric Process and Engineering

C036093

Elmwood#7Replace 23KV Groun Bank

5360-Narragansett Electric and Gas Project Revision Detail Report

Fund Project Number: <u>C036093</u>	USSC #:
Revision: <u>2</u>	Budget Version: <u>PPM Project Authorizations</u>
Project Title: <u>Elmwood#7Replace 23KV Groun Bank</u>	
Project Description: This project will replace the existing 3, single-phase 500 kVA grounding bank rated 21.45 kV - 11 kV with a 3-phase zig-zag transformer rated 1500 kVA.	

Project Status: <u>Closed</u>	
Responsible Person: <u>PHILLIPS, MARK</u>	Initiator: <u>Pericola, Steven J</u>
Spending Rationale: <u>Asset Condition</u>	Funding Type: <u>P Electric Distribution Sub R1</u>
Budget Class: <u>Asset Replacement</u>	
Capital by Category:	
Program Code:	
Project Risk Score: <u>39</u>	Project Complexity Score: <u>15</u>

Project Schedule / Expenditures

Revision Status: <u>Approved</u>					
Est Start Date: <u>4/9/2010</u>		Est Complete Date: <u>4/9/2014</u>			
Est In-Service Date: <u>4/9/2014</u>					
TTD Actuals: <u>\$511,534</u>		As Of: <u>10/2/2017</u>			
Cost Breakdown	<u>Capital</u>	<u>Expense</u>	<u>Removal</u>	<u>Total</u>	<u>Credits</u>
	<u>\$529,933</u>	<u>\$0</u>	<u>\$10,481</u>	<u>\$540,414</u>	<u>\$0</u>

Justification / Risk Identification:

The transformer grounding bank at Elmwood station is necessary for this station to operate. The transformers are in very poor condition and are near end-of-life. The units are old (81 years), and contain sludge in the oil. They are leaking oil and the foundations are contaminated with oil. Presently, there is not a contingency available in case of failure. This is part of a larger strategy and this bank is on our replacement and watch lists.

Project Scope:

The scope of this project is to replace the existing 21.45 kV - 11 kV, 3 single-phase 500 kVA grounding bank with a 1500 kVA, 3-phase zig-zag transformer. The existing concrete slab foundation will be removed and a new concrete slab foundation will be installed.

Project Alternatives Considered:

Additional Notes:

Complexity Score = 15, Level 3 (light playbook)

Related Projects:

Project Number:

Project Name:

Approvals

Line 1:	Date	<u>10/31/2012 00:00:00</u>	Approver	<u>pwrconv</u>	<u>SAP Default Approver</u>
Line 2:	Date		Approver		
Line 3:	Date		Approver		
Line 4:	Date		Approver		
Line 5:	Date		Approver		

*****Project Authorization is for Approved Revision Total Estimated Cost +10%*****

REDACTED - CEII Information has been Redacted

PowerPlan ----- PPGPRD Database

File Edit Subsystem Batch Admin Preferences Window Help

Projects Assets Tables CR MyPPlan Help Calc Print Win

Funding Project Estimates - Summary C036093 Current Total Authorized Amount: \$540,...

Title

Project Number

Budget Version PPM Project Authorizations [a]

Revision

Revision Status

Revision No.

Est Start Date

Est Complete Date

Est In Srvc Date

Capital

Expense

Jobbing

Retirement

Removal

Total (excl. Rets.)

Credits

Net

Spending Estimates:

Property Estimates:

Edit:

Other:

Revision Info **Other Updates**

Revision of 3

[Find Revision](#)

Show 'Budget Only' Revisions

Record of 1

Distribution Project Detail (Form) / **09310 Elmwood#7 Replace 23KV Groun Bank** (Item)

Form Report, printed by: Diconza, Glen, **Oct 02, 2017**

PROJECT DETAIL	
1	Basic Info
Project Name:	09310 Elmwood#7 Replace 23KV Groun Bank
Home Portfolio:	Company 49 Narragansett Electric - Substation (home)
Created On:	Aug 10, 2010

Project ID:	009310
Funding Project #:	C36093
Project Initiator:	
Project Owner:	Parenteau, Stephen
Project Description:	This project will replace the existing 3, single-phase 500 kVA grounding bank rated 21.45 kV - 11 kV with a 3-phase zig-zag transformer rated 1500 kVA.
Type of Spend:	DxD
Project Status:	Open Funded (1, 2a, 2b)
Operating Segment:	Distribution
Project Type:	P_Electric Distribution Substation
Funding Type:	Specific
CAPEX Program Name:	D_REP-Substation Transformer Replacement
Budget Class:	Asset Replacement
Executive Report:	Asset Replacement
Economic:	Non Mandatory
Spending Rationale:	Asset Condition
Load/Non-Load:	Non Load
Planning Classification:	Infrastructure Improvements
Program:	Substation Asset Replacement
Construction Type:	Substation
Company #:	49
Region:	NE
Resource Planning Region:	Rhode Island
Division:	OS000-00049 Ocean State
State:	RI

2	Sanctions
DCIG #:	
DCIG Status:	Not Required
PWS Date:	
DCIG Sanctioning Date:	
DCIG Resanctioning Date:	
DCIG Completion Date:	
DCIG Closure Date:	
Planning Study Number:	
CAPEX Category:	
Strategy Name:	Substation Power Transformer Strategy

DOA Status:	Approved	★
Most Recent Approval Date:	Jan 23, 2012	
Approved Capital Cost:	529,933	
Approved O&M Cost:	0	
Approved Removal Cost:	10,481	
Total Approved Cost:	540,414	

3	Scores	
Project Risk Type:	Reliability	
Project Risk Criteria:	CMI per Event	
Mandatory?	No	
Impact Score:	5 - (1M < X <= 5M)	
Likelihood Score:	5 - Once in 3-5 Yrs	
Project Risk Score:	39	◆

Complexity Level:	Low - Light Playbook	
Project Complexity Score:	15	

4	PDS Required	
	<i>Is there an associated parent funding project?</i>	
Parent Funding Project?	No	
Blanket/Program Funding #:		

Legacy PDS Number:		
Planning Need Date:	Apr 09, 2014	
Planning Year Type:		
Planning Year:		
Planned Start Year:	FY12/13	
Major Location:	SUB #7 ELMWOOD OUTDOOR #2	
City / Town:		
Estimate Grade:		
Escalated Estimate - Total Cost:	540,414	
Estimate Option #:		
Emergent Form:		
EDIS Requirements:		
NAP Comment:		
Study Area:		

5	Substation	
Substation Name:	Elmwood 7 - Outdoor	
Substation Number:	7	
Substation Voltage:		
# of Dist Feeder Positions Added:		
# of Added Capacity Feeder Positions:		

6 Technical Approval	
Technical Status:	Approved
Submit for Technical Review?	Yes
Technical Approver:	Domino, Mark

Technical Approval?	Is Approved
Reviewed By:	Domino, Mark
Reviewed On:	Jan 13, 2012

Suggested Update Date:	Apr 09, 2011
Confirmed Estimate Maturity Date:	-
Approver Comment:	

7 Distribution Planning Release	
Status:	Released
Initially Released On:	Jan 24, 2012
Last Released On:	Jan 24, 2012

Release Project?	
Comments:	
Design Manager/Supervisor:	Minisandram, Venkatesh
Program Manager:	Parenteau, Steve

8 Project Cancellation	
	** USE CAUTION ** Once a project is cancelled it can only be re-opened by a PPM Administrator.
Project Status:	Open Funded (1, 2a, 2b)
Project Cancellation:	

9 Justification and Scope	
<i>Project Justification/Risk Identification</i>	
The transformer grounding bank at Elmwood station is necessary for this station to operate. The transformers are in very poor condition and are near end-of-life. The units are old (81 years), and contain sludge in the oil. They are leaking oil and the foundations are contaminated with oil. Presently, there is not a contingency available in case of failure. This is part of a larger strategy and this bank is on our replacement and watch lists.	
<i>Scope</i>	
The scope of this project is to replace the existing 21.45 kV - 11 kV, 3 single-phase 500 kVA grounding bank with a 1500 kVA, 3-phase zig-zag transformer. The existing concrete slab foundation will be removed and a new concrete slab foundation will be installed.	
<i>Project Alternatives Considered</i>	

<i>Additional Notes</i>	
Complexity Score = 15, Level 3 (light playbook)	

10 Capital Budget				
	Capital	Opex	Removal	Total
FY 13	50,000	1,500	4,000	55,500
FY 14	1,500,000	45,000	120,000	1,665,000
FY 15	800,000	24,000	64,000	888,000
FY 16	0	0	0	0
FY 17	0	0	0	0

	Capital	Opex	Removal	Total
Total	2,350,000	70,500	188,000	2,608,500

11 Project Documentation					
Documentum Link:					
Name	Link	Size	Owner	Uploaded	
Grd_Trans_Spec.pdf	http://nyhcbapp204v/ProSight/IDR/gd.aspx?docId=2573	81 KB	Duarte, Eileen	Jan 12, 2012 1:46 PM	
h32365.pdf	http://nyhcbapp204v/ProSight/IDR/gd.aspx?docId=2574	238 KB	Duarte, Eileen	Jan 12, 2012 1:46 PM	
online.pdf	http://nyhcbapp204v/ProSight/IDR/gd.aspx?docId=2546	44 KB	Duarte, Eileen	Jan 09, 2012 4:21 PM	
RE 09 00 100 Conceptual Engineering Report for Elmwood Substations _update_conceptual.pdf	http://nyhcbapp204v/ProSight/IDR/gd.aspx?docId=2545	1,801 KB	Duarte, Eileen	Jan 09, 2012 4:14 PM	
Description: Conceptual Report					

C036230

Langworthy Substation (D-Sub)

5360-Narragansett Electric and Gas Project Revision Detail Report

Fund Project Number: <u>C036230</u>	USSC #: <u>USSC-12-444 v3C</u>
Revision: <u>8</u>	Budget Version: <u>Default</u>
Project Title: <u>Langworthy Substation (D-Sub)</u>	
Project Description: This project upgrades Langworthy substation to add capacity and to phase this station with the rest of the distribution system in the area.	

Project Status: <u>Closed</u>	
Responsible Person: <u>ARTHUR, DAVID</u>	Initiator: <u>Vaz, Jack P</u>
Spending Rationale: <u>Asset Condition</u>	Funding Type: <u>P Electric Distribution Sub RI</u>
Budget Class: <u>Asset Replacement</u>	
Capital by Category:	
Program Code:	
Project Risk Score: <u>34</u>	Project Complexity Score: <u>19</u>

Project Schedule / Expenditures

Revision Status: <u>Approved</u>					
Est Start Date: <u>4/1/2010</u>		Est Complete Date: <u>9/30/2014</u>			
Est In-Service Date: <u>4/30/2014</u>					
TTD Actuals: <u>\$1,702,060</u>		As Of: <u>10/2/2017</u>			
Cost Breakdown	<u>Capital</u>	<u>Expense</u>	<u>Removal</u>	<u>Total</u>	<u>Credits</u>
	<u>\$1,682,000</u>	<u>\$15,000</u>	<u>\$6,000</u>	<u>\$1,703,000</u>	<u>\$0</u>

Justification / Risk Identification:
 Westerly substation in Westerly, Rhode Island was damaged beyond repair in the recent Rhode Island floods (April 2010). Westerly Substation supplied about 30MW of load. This project adds much needed capacity in this area.

Project Scope:
 Install a MITS at Langworthy Substation consisting of 1-7.5/9.375MVA transformer; 600A reclosers and 3-656A voltage regulators.

Project Alternatives Considered:

<Enter data here>

Additional Notes:

Budget Class updated to AR from D/F to match ISR 02/07/2012

Related Projects:

Project Number:

Project Name:

Approvals

Line 1:	Date	<u>8/23/2016 12:51:47</u>	Approver	<u>carlim</u>	<u>USSC Approver</u>
Line 2:	Date		Approver		
Line 3:	Date		Approver		
Line 4:	Date		Approver		
Line 5:	Date		Approver		

*****Project Authorization is for Approved Revision Total Estimated Cost +10%*****

REDACTED - CEII Information has been Redacted

PowerPlan ----- PPGPRD Database

File Edit Subsystem Batch Admin Preferences Window Help

Projects Assets Tables CR MyPlan Help Calc Print Win

Funding Project Estimates - Summary C036230 Current Total Authorized Amount: \$1,70...

Title

Project Number

Budget Version	Default (active)
Revision	Closure
Revision Status	Approved
Revision No.	<input type="text" value="8"/>
Est Start Date	<input type="text" value="04/01/2010"/>
Est Complete Date	<input type="text" value="09/30/2014"/>
Est In Srvc Date	<input type="text" value="04/30/2014"/>
Capital	<input type="text" value="\$1,682,000.00"/>
Expense	<input type="text" value="\$15,000.00"/>
Jobbing	<input type="text" value="\$0.00"/>
Retirement	<input type="text" value="\$0.00"/>
Removal	<input type="text" value="\$6,000.00"/>
Total (excl. Rets.)	<input type="text" value="\$1,703,000.00"/>
Credits	<input type="text" value="\$0.00"/>
Net	<input type="text" value="\$1,703,000.00"/>

Revision Info

Revision of 8

[Find Revision](#)

Show 'Budget Only' Revisions

Spending Estimates:

Edit:

Property Estimates:

Other:

Record of 1

1



USSC Closure Paper

Title:	Langworthy Substation Upgrade	Sanction Paper #:	USSC-12-444v3C
Project #:	C036230, C036232	Sanction Type:	Closure
Operating Company:	The Narragansett Electric Co.	Date of Request:	8/9/16
Author:	David Arthur	Sponsor:	Carol Sedewitz, - Vice President Electric Asset Management
Utility Service:	Electricity T&D	Project Manager:	David Arthur

1 Executive Summary

This paper is presented to close C036230 and C036232. The total spend was \$1.888M. The latest sanctioned amount for this project was \$1.805M with a tolerance of +/- 10%.

The final spend amount is \$1.894M broken down into:

- \$1.854M Capex*
- \$0.021M Opex*
- \$0.019M Removal*

2 Project Summary

The project was a component of the Westerly Substation Flood Restoration Project and was originally initiated through a Partial Sanction dated Oct. 12, 2011 and titled "Westerly Substation Flood Restoration" in sanction paper number USSC1011PS407.

The upgrades at Langworthy Substation provide capacity to supply the southern section of Westerly. In addition, this upgrade corrected voltage phasing on this station to improve reliability by resolving undesirable voltage phasing issues. That is, feeder ties were originally made by first dropping the customer, then by switching them over to a second supply.

The driver for this project was Load Relief. Project was required to resolve projected overloads in the southern section of the Town of Westerly. The previous distribution system in this area did not have capacity to insure it operated safely within rated capability. Relief to this system was possible only by increasing distribution capacity. The most economical approach was to upgrade Langworthy substation. The project was executed successfully and completed the following:



USSC Closure Paper

- Upgraded the existing 34.5/12.47kV modular feeder position. A new power transformer, substation reclosers and voltage regulators were installed in a modular configuration and the existing equipment was removed.
- Installed a new feeder getaway and 600 ft of overhead reconductoring

3 Over / Under Expenditure Analysis

3.1 Summary Table

Actual Spending (\$M)			
Project #	Description		Total Spend
C036230	Langworthy Substation (D-Sub)	Capex	1.682
		Opex	0.015
		Removal	0.006
		Total	1.703
Project #	Description		Total Spend
C036232	Langworthy Substation (D-Line)	Capex	0.172
		Opex	0.007
		Removal	0.013
		Total	0.192
Total		Capex	1.854
		Opex	0.022
		Removal	0.019
		Total	1.895

Project Sanction Summary Table			
Project Sanction Approval (\$M)			Total Spend
		Capex	1.697
		Opex	0.018
		Removal	0.090
		Total Cost	1.805
Sanction Variance (\$M)			Total Spend
		Capex	(0.157)
		Opex	(0.004)
		Removal	0.071
		Total Variance	(0.090)

3.2 Analysis



USSC Closure Paper

The project was completed within the allowed budget. Additional landscaping mitigation at the station was required as a result of neighborhood outreach. This increased the cost of the overall project, however the final cost is within the estimate tolerance.

4 Improvements / Lessons Learned

Ensure that project risk or estimate includes costs for landscaping improvements and EMF analysis if the station is located within a residential area.

5 Closeout Activities

The following closeout activities have been completed.

Activity	Completed
All work has been completed in accordance with all National Grid policies	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All work orders and funding projects have been closed	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All as-builts have been completed	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All lessons learned have been entered appropriately into the lesson learned database	<input checked="" type="radio"/> Yes <input type="radio"/> N/A



USSC Closure Paper

6 Statements of Support

6.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
<i>Investment Planning</i>	Glen DiConza	Endorses relative to 5-year business plan or emergent work
<i>Resource Planning</i>	Anne Wyman	Endorses construction resources, cost estimate, schedule, and portfolio alignment
Resource Planning	Mark Phillips	Endorses construction resources, cost estimate, schedule, and portfolio alignment
Asset Management / Planning	Alan T. Labarre	Endorses scope, estimate, and schedule with the company's goals, strategies, and objectives
Engineering and Design	Suzan E. Martuscello	Endorses scope, design, conformance with design standards
Engineering and Design	Leonard G. Swanson	Endorses scope, design, conformance with design standards
Project Management	Andrew Schneller	Endorses resources, cost estimate, schedule
Electric Project Estimation	Jammie Simonds	Endorses Cost Estimate

USSC Closure Paper



6.2 Reviewers

The reviewers have provided feedback on the content/language of the paper.

Function	Individual
Finance	Patricia Easterly
Regulatory	Peter Zschokke
Jurisdictional Delegate	Jim Patterson

USSC Closure Paper



7 Decisions

I approve this paper.

Signature.....*CK*.....Date.....*8/23/16*.....
Christopher Kelly, Senior Vice President, Electric Process & Engineering

C036397

Clarkson - new 13F10 feeder (line)

5360-Narragansett Electric and Gas Project Revision Detail Report

Fund Project Number: <u>C036397</u>	USSC #: <u>USSC-16-215C</u>
Revision: <u>8</u>	Budget Version: <u>Default</u>
Project Title: <u>Clarkson - new 13F10 feeder (line)</u>	
Project Description: New 13F10 feeder. Install new UG getaway from Sub to P12 Whipple St (1500' in existing MH&D). Close new circuit recloser. Open P6 Admiral St. Close P45 Orme St (previously 13F3). Open P52 Smith St (previously 13F2).	

Project Status: <u>Closed</u>	
Responsible Person: <u>CURLEY, JOSEPH</u>	Initiator: <u>Evans, David W</u>
Spending Rationale: <u>System Capacity & Performance</u>	Funding Type: <u>P Electric Distribution Line RI</u>
Budget Class: <u>Load Relief</u>	
Capital by Category:	
Program Code:	
Project Risk Score: <u>31</u>	Project Complexity Score: <u>15</u>

Project Schedule / Expenditures

Revision Status: <u>Approved</u>					
Est Start Date: <u>1/1/2012</u>			Est Complete Date: <u>9/1/2015</u>		
Est In-Service Date: <u>9/1/2015</u>					
TTD Actuals: <u>\$1,008,150</u>			As Of: <u>10/2/2017</u>		
Cost Breakdown	<u>Capital</u>	<u>Expense</u>	<u>Removal</u>	<u>Total</u>	<u>Credits</u>
	<u>\$950,000</u>	<u>\$19,000</u>	<u>\$40,000</u>	<u>\$1,009,000</u>	<u>\$0</u>

Justification / Risk Identification:
 13F2, 13F3, 13F4 & 13F8 feeders projected to exceed their SN ratings in 2013.

Project Scope:
 New 13F10 feeder. Install new UG getaway from Sub to P12 Whipple St (1500' in existing MH&D). Close new circuit recloser. Open P6 Admiral St. Close P45 Orme St (previously 13F3). Open P52 Smith St (previously 13F2)

04/25/12-- THIS 13F10 FEEDER GETAWAY IS ON THE CORNER OF SALINA AND SUFFOLK ST.
 A NEW PLAN TO BE DEVELOPED TO GET 13F10 OUT ON THE DISTRIBUTION CIRCUIT FOR LOAD RELIEF IN THE AREA FROM ITS CURRENT BIDDING LOCATION

Project Alternatives Considered:

<Enter data here>

Additional Notes:

Re-Sanction from \$630K to \$960K document attached. Additional work was added to the overall scope. Please see above for Phase 2 details. Based on the final design it was determined that Phase 2 would cost 330K including construction. The following is a break down of costs, 260K for Labor and Labor Overheads including Engineering & Design, 50K for Materials and Material Overheads, 10K for Transportation and 10K for Police Protection for a total of 330K for Phase 2. Phase 1 was previously approved for 630K bringing the total project cost to 960K.

Related Projects:

Project Number:

Project Name:

Approvals

Line 1:	Date <u>6/22/2016 16:54:16</u>	Approver <u>carlim</u>	<u>USSC Approver</u>
Line 2:	Date	Approver	
Line 3:	Date	Approver	
Line 4:	Date	Approver	
Line 5:	Date	Approver	

*****Project Authorization is for Approved Revision Total Estimated Cost +10%*****

REDACTED - CEII Information has been Redacted

PowerPlan ----- PPGPRD Database

File Edit Subsystem Batch Admin Preferences Window Help

Projects Assets Tables CR MyPPlan Help Calc Print Win

Funding Project Estimates - Summary C036397 Current Total Authorized Amount: \$1,00...

Title Clarkson - new 13F10 feeder (line)
Project Number C036397

Budget Version	Default (active)
Revision	16-215C
Revision Status	Approved
Revision No.	8
Est Start Date	01/01/2012
Est Complete Date	09/01/2015
Est In Srvc Date	09/01/2015
Capital	\$950,000.00
Expense	\$19,000.00
Jobbing	\$0.00
Retirement	\$0.00
Removal	\$40,000.00
Total (excl. Rets.)	\$1,009,000.00
Credits	\$0.00
Net	\$1,009,000.00

Revision Info **Other Updates**

Revision 8 of 8

[Find Revision](#)

Show 'Budget Only' Revisions

Spending Estimates:

Property Estimates:

Edit:

Other:

Record of 1



USSC Closure Paper

Title:	Clarkson - New 13F10 feeder (line)	Sanction Paper #:	USSC-16-215C
Project #:	C036397	Sanction Type:	Closure
Operating Company:	The Narragansett Electric Co.	Date of Request:	06/14/2016
Author:	Joe Curley	Sponsor:	Carol Sedewitz, Acting VP Electric Asset Management
Utility Service:	Electricity T&D	Project Manager:	Joe Curley

1 Executive Summary

This paper is presented to close C036397. The total spend was \$1.009M. The latest sanctioned amount for this project was \$0.960M.

The final spend amount is \$1.009M broken down into:

- \$0.950M Capex
- \$0.019M Opex
- \$0.040M Removal

2 Project Summary

As a result of 2012 annual planning analysis, the 13F10 feeder project was initiated to address normal summer issues on the Clarkson Street 13F2 and 13F3 feeders. Since this projects inception, load transfers have been enacted to avoid overloads and Distribution Planning has confirmed the continued need and priority. The scope included the installation of a new underground getaway cable from the substation to Pole 12 Whipple Street (1400' in an existing manhole & duct system and 100' in a new 2 way - 5" duct-bank).



USSC Closure Paper

3 Over / Under Expenditure Analysis

3.1 Summary Table

Actual Spending (\$M)			
Project #	Description		Total Spend
C036397	Clarkson - New 13F10 Feeder (Line)	Capex	0.950
		Opex	0.019
		Removal	0.040
		Total	1.009
Total		Capex	0.950
		Opex	0.019
		Removal	0.040
		Total	1.009

Project Sanction Summary Table			
Project Sanction Approval (\$M)			Total Spend
		Capex	0.653
		Opex	0.173
		Removal	0.134
		Total Cost	0.960
Sanction Variance (\$M)			Total Spend
		Capex	(0.297)
		Opex	0.133
		Removal	0.115
		Total Variance	(0.049)

3.2 Analysis

4 Improvements / Lessons Learned

A 2nd phase of this project was added after Operations became involved during the Constructability Review with Distribution Design. Planning/Design should have included Operations in their original discussions to determine scope. Instead of adding a 2nd phase of the project during the constructability review, the entire project scope could have been determined prior to this job starting detailed design.



USSC Closure Paper

5 Closeout Activities

The following closeout activities have been completed.

Activity	Completed
All work has been completed in accordance with all National Grid policies	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All work orders and funding projects have been closed	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All as-builts have been completed	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All lessons learned have been entered appropriately into the lesson learned database	<input checked="" type="radio"/> Yes <input type="radio"/> N/A

6 Statements of Support

6.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Investment Planning	Glen DiConza	Endorses relative to 5-year business plan or emergent work
Resource Planning	Anne Wyman	Endorses construction resources, cost estimate, schedule, and portfolio alignment
Asset Management/Planning	Alan Labarre	Endorses scope, estimate, and schedule with the company's goals, strategies, and objectives



USSC Closure Paper

6.2 Reviewers

The reviewers have provided feedback on the content/language of the paper.

Function	Individual
Finance	Patricia Easterly
Regulatory	Peter Zschokke
Jurisdictional Delegate	Jim Patterson
Procurement	Art Curran

USSC Closure Paper



7 Decisions

I approve this paper.

Signature..... *CK* Date..... *6/22/16*

Executive Sponsor – Christopher Kelly,
Acting Senior Vice President – Electric Process & Engineering

C036450

83F2 Load Relief - New Fdr (Dline)

5360-Narragansett Electric and Gas Project Revision Detail Report

Fund Project Number: <u>C036450</u>	USSC #: -
Revision: <u>6</u>	Budget Version: <u>Default</u>
Project Title: <u>83F2 Load Relief - New Fdr (Dline)</u>	
Project Description: Distribution line work associated with the installation of a new 12.47 kV feeder at Tower Hill Rd Substation (88F7)	

Project Status: <u>Closed</u>	
Responsible Person: <u>CURLEY, JOSEPH</u>	Initiator: <u>Shields, Ryan</u>
Spending Rationale: <u>System Capacity & Performance</u>	Funding Type: <u>P Electric Distribution Line RI</u>
Budget Class: <u>Load Relief</u>	
Capital by Category:	
Program Code:	
Project Risk Score: <u>41</u>	Project Complexity Score: <u>11</u>

Project Schedule / Expenditures

Revision Status: <u>Approved</u>					
Est Start Date: <u>4/1/2013</u>		Est Complete Date: <u>9/15/2015</u>			
Est In-Service Date: <u>9/15/2015</u>					
TTD Actuals: <u>\$690,054</u>		As Of: <u>10/2/2017</u>			
Cost Breakdown	<u>Capital</u>	<u>Expense</u>	<u>Removal</u>	<u>Total</u>	<u>Credits</u>
	<u>\$258,400</u>	<u>\$394,400</u>	<u>\$27,200</u>	<u>\$680,000</u>	<u>\$0</u>

Justification / Risk Identification:

In 2014, projected loading on two feeders in the Tower Hill Road substation area will exceed feeder summer normal (SN) ratings. Loading on the Tower Hill 88F5 feeder is projected at 113% of SN rating and loading on the Old Baptist 46F2 feeder is projected at 104% of SN rating.

Tower Hill Road substation was constructed to supply load growth in the South County East Study Area. Tower Hill substation consists of single transformer feeding four feeders. The data on these feeders have been

Project Scope:

From the Tower Hill substation 88F7 breaker position to P91 Tower Hill Rd (~1,800₂) install getaway cable consisting of 3-1/C 1000 Kcmil CU EPR CN 15kV cable.

Re-route the Lafayette substation 30F1 & 30F2 feeders. The 30F1 will be routed east and the 30F2 west. On Ten Rod Rd, underbuild existing open wire construction with 477 Al spacer cable to reroute the 30F2 feeder west.

Project Alternatives Considered:

<Enter data here>

Additional Notes:

Re-Sanction from \$494,956 to \$680K document attached. Police Protection was understated on the original estimate by 30K as well as Transportation by 20k. In addition, there were multiple outages that were required to be done on off hours and overtime work was authorized in order to complete this project which caused an increase in Labor and Labor Overheads by 135K bringing the total project cost to 680K.

Related Projects:

Project Number:

Project Name:

Approvals

Line 1:	Date <u>9/3/2015 11:16:38</u>	Approver <u>curljo</u>	<u>DOA - Distribution Lev</u>
Line 2:	Date <u>9/4/2015 11:54:39</u>	Approver <u>Park, Michelle L</u>	<u>DOA - Distribution Lev</u>
Line 3:	Date <u>9/17/2015 09:25:37</u>	Approver <u>Constable, Ryan</u>	<u>DOA - Distribution Lev</u>
Line 4:	Date <u>9/25/2015 08:21:38</u>	Approver <u>Cox, Roger D</u>	<u>DOA - Distribution Lev</u>
Line 5:	Date <u>9/29/2015 09:18:16</u>	Approver <u>LaBarre, Alan T</u>	<u>DOA - Distribution Lev</u>

*****Project Authorization is for Approved Revision Total Estimated Cost +10%*****

REDACTED - CEII Information has been Redacted

PowerPlan ----- PPGPRD Database

File Edit Subsystem Batch Admin Preferences Window Help

Projects Assets Tables CR MyPPlan Help Calc Print Win

Funding Project Estimates - Summary C036450 Current Total Authorized Amount: \$680,...

Title: 83F2 Load Relief - New Fdr (Dline)
Project Number: C036450

Budget Version	Default (active)
Revision	RSN Form
Revision Status	Approved
Revision No.	6
Est Start Date	04/01/2013
Est Complete Date	09/15/2015
Est In Srvc Date	09/15/2015
Capital	\$258,400.00
Expense	\$394,400.00
Jobbing	\$0.00
Retirement	\$0.00
Removal	\$27,200.00
Total (excl. Rets.)	\$680,000.00
Credits	\$0.00
Net	\$680,000.00

Revision Info: Other Updates

Revision: 6 of 6 [K] [<] [>] [>I]

[Find Revision](#) [Send for Approval]

Show 'Budget Only' Revisions

Spending Estimates:

Grid Estimates
Forecast
Summarize from WO
Copy Estimate

Property Estimates:

Unit Estimates
Create As Built
Delete Used Estimates

Edit:

New Revision
Delete Revision
Update
Update With Actuals
Import Estimates

Other:

Revision Comments
Released Dollars
Substitution
Slide

Version Compare

Close

Record 1 of 1 [K] [<] [>] [>I]

Audits

Change in DOA Request Form (Less than Million)

Version 9.0

Note: Fill data in the grey area and email form to **Mario Carlino** and the appropriate IP analyst.

Gas - Tracy Nguyen

Electric - Janice Flynn

*Date:	8/31/2015
*Operating Company:	The Narragansett Electric Co.
*PowerPlant Project Id:	C036450
*Project Name:	83F2 Load Relief - New Fdr (Dline)
*Project Engineer:	Chris Montalto
*Project Manager:	Joe Curley

Latest Project Estimate

*Date of Latest Sanction:	10/31/2012
---------------------------	------------

Total	Capex	Opex	Removal
\$494,956	\$188,083	\$287,075	\$19,798

Revised Project Estimate

Total	Capex	Opex	Removal
\$680,000	\$258,400	\$394,400	\$27,200

Cash Flows

Previous FY	Capex	Opex	Removal
\$530,000	\$201,400	\$307,400	\$21,200

Current FY	Capex	Opex	Removal
\$150,000	\$57,000	\$87,000	\$6,000

FY+1	Capex	Opex	Removal
\$0			

FY+2	Capex	Opex	Removal
\$0			

Customer Contribution	

Reason for Revision

<input checked="" type="checkbox"/>	Revised forecast either exceeds or is lower than the Approved Amount - Project Still In Process
	New Project Estimated Completion Date: 9/15/2015

<input type="checkbox"/>	Actual Spending either exceeds or is lower than the Approved Amount – Project is Complete
--------------------------	---

Reason for Increased Spending (Please expand the row height if box doesn't fit)

<input type="checkbox"/>	Change in Scope (Material, Labor or Other)
--------------------------	--

Change in DOA Request Form (Less than Million)

<input type="checkbox"/>	Resource Allocation (Schedule, Delay, OT, or Contractor) <div style="background-color: #cccccc; height: 150px;"></div>
<input checked="" type="checkbox"/>	Low/High Estimate Police Protection was understated on the original estimate by 30K as well as Transportation by 20k. In addition, there were multiple outages that were required to be done on off hours and overtime work was authorized in order to complete this project which caused an increase in Labor and Labor Overheads by 135K bringing the total project cost to 680K.
<input type="checkbox"/>	External Forces (Permitting Requirements, Weather, Contractor Issues, etc) <div style="background-color: #cccccc; height: 150px;"></div>

In-service Dates

*Original In-service Date:
 *Revised In-service Date:

C036516

Kilvert St 87 - New Fdr (DLine)

5360-Narragansett Electric and Gas Project Revision Detail Report

Fund Project Number: <u>C036516</u>	USSC #: <u>USSC-12-346 v2</u>
Revision: <u>6</u>	Budget Version: <u>Default</u>
Project Title: <u>Kilvert St 87 - New Fdr (DLine)</u>	
Project Description: Distribution line work associated with installing two new 12.47 kV feeder at Kilvert Street substation.	

Project Status: <u>open</u>	
Responsible Person: <u>HURLEY, KATHLEEN</u>	Initiator: <u>Shields, Ryan</u>
Spending Rationale: <u>System Capacity & Performance</u>	Funding Type: <u>P Electric Distribution Line RI</u>
Budget Class: <u>Load Relief</u>	
Capital by Category:	
Program Code:	
Project Risk Score: <u>42</u>	Project Complexity Score: <u>20</u>

Project Schedule / Expenditures

Revision Status: <u>Approved</u>					
Est Start Date: <u>8/10/2012</u>		Est Complete Date: <u>5/10/2022</u>			
Est In-Service Date: <u>6/30/2015</u>					
TTD Actuals: <u>\$3,732,153</u>		As Of: <u>10/2/2017</u>			
Cost Breakdown	<u>Capital</u>	<u>Expense</u>	<u>Removal</u>	<u>Total</u>	<u>Credits</u>
	<u>\$3,143,000</u>	<u>\$165,000</u>	<u>\$523,000</u>	<u>\$3,831,000</u>	<u>\$0</u>

Justification / Risk Identification:

This project is required to address reliability concerns in the City of Warwick. The concerns to be addressed are as follows:

- 1) In 2015, one feeder is projected to be loaded to 115% of its Summer Normal (SN) rating. In 2020, six feeders are projected to be loaded in excess of their SN rating.
- 2) In 2015, loading on the Warwick T1 transformer is projected at 112% of SN rating. In 2017, loading on the Warwick T4 transformer is projected at 104% of SN rating.

Project Scope:

At Kilvert Street substation, install the 87F5 and 87F6 feeder positions. Install UG and OH infrastructure as shown in the attached scope document. Modify the area distribution also as shown on the attached scope document.

Project Alternatives Considered:

<Enter data here>

Additional Notes:

<Enter data here>

Related Projects:

Project Number:

Project Name:

Approvals

Line 1:	Date	<u>8/15/2013 11:13:31</u>	Approver	<u>carlim</u>	<u>USSC Approver</u>
Line 2:	Date		Approver		
Line 3:	Date		Approver		
Line 4:	Date		Approver		
Line 5:	Date		Approver		

*****Project Authorization is for Approved Revision Total Estimated Cost +10%*****

REDACTED - CEII Information has been Redacted

PowerPlan ----- PPGPRD Database

File Edit Subsystem Batch Admin Preferences Window Help

Projects Assets Tables CR MyPPlan Help Calc Print Win

Funding Project Estimates - Summary C036516 Current Total Authorized Amount: \$3,831,000.00

Title

Project Number

Budget Version	Default [active]
Revision	v2
Revision Status	Approved
Revision No.	<input type="text" value="6"/>
Est Start Date	08/10/2012
Est Complete Date	05/10/2022
Est In Srvc Date	06/30/2015
Capital	\$3,143,000.00
Expense	\$165,000.00
Jobbing	\$0.00
Retirement	\$0.00
Removal	\$523,000.00
Total (excl. Rets.)	\$3,831,000.00
Credits	\$0.00
Net	\$3,831,000.00

Revision Info

Revision of 6

[Find Revision](#)

Show 'Budget Only' Revisions

Spending Estimates:

Property Estimates:

Edit:

Other:

Record of 1



Short Form Sanction Paper

Title:	Kilvert St - New Feeders	Sanction Paper #:	USSC-12-346 v2
Project #:	C036516	Sanction Type:	Sanction
Operating Company:	The Narragansett Electric Co.	Date of Request:	August 6, 2013
Author:	Kathleen Hurley	Sponsor:	Cheryl Warren
Utility Service:	Electricity T&D	Project Manager:	Kathleen Hurley

1 Executive Summary

1.1 Sanctioning Summary

This paper requests a Sanction for C036516 in the amount of \$3.83M with a tolerance of +/- 10% for the purposes of a full implementation of the Kilvert St Feeder Project.

The sanction amount is \$3.83M broken down into:

- \$ 3.140 Capex
- \$ 0.170 Opex
- \$ 0.520 Removal

2 Project Detail

2.1 Project Description, Justification, Customer Issues

This project is required to address reliability concerns in the City of Warwick. The concerns to be addressed are as follows:

- By 2016, three feeders are projected to be loaded greater than their Summer Normal (SN) ratings.
- By 2015 and 2017 respectively, the loading on the Warwick T1 and T4 transformers is projected to be greater than their SN ratings.
- By 2020 and 2022 respectively, the loading on the 2222 and 2262 sub-transmission lines is projected to be at or greater than their SN ratings.
- Contingency loading on a number of sub-transmission lines exceeds summer emergency ratings. Block transfers are utilized to prevent line overloads. These block transfers have a negative impact on reliability and make operating this system costly and challenging since block transfers have to be made manually due to lack of remote control capabilities.



Short Form Sanction Paper

To address the projected overloads considering the number of geographic barriers in this area, this paper recommends installing two new feeders, 87F5 and 87F6, at Kilvert Street substation. This recommendation is in-line with the long-term plan for this area to continue to expand Kilvert Street to provide area relief. The plan resolves projected overloads in the area at the least cost. There is an approved strategy to install a second 55-MVA transformer at Kilvert Street to mitigate contingency concerns (USSC-12-080).

Loading on a number of feeders in this area is projected to exceed summer normal ratings within the next five years. Load transfers have been used in the past to defer the need for infrastructure investment, but further transfers are no longer possible. New capacity is required to address these projected overloads. The table below shows loading on area feeders projected to be loaded above summer normal ratings:

Substation	Feeder	SN Rating (Amps)	2016		2019		2022	
			Amps	%SN	Amps	%SN	Amps	%SN
DRUMROCK	14F1	530	519	98%	551	104%	582	110%
DRUMROCK	14F2	530	490	92%	520	98%	550	104%
LINCOLN AVE.	72F4	530	535	101%	568	107%	600	113%
LINCOLN AVE.	72F5	515	518	101%	550	107%	582	113%
LINCOLN AVE.	72F6	515	521	101%	553	107%	585	114%
WARWICK	52F1	409	368	90%	391	96%	413	101%

2.1.1 Alternatives:

Alternative 1 (\$10M):

This plan recommends development of a new 115/12.47 kV substation adjacent to the transmission right-of-way on a new site near the intersection of East Avenue and Greenwich Avenue in the city of Warwick. This substation would be supplied from the adjacent 115kV transmission lines. Initially, the substation would be equipped with a single 24/32/40 MVA transformer and two feeders. Land would have to be acquired to site this proposed substation avoiding to the furthest extent possible wetlands along the Pawtuxet River. The Investment Grade Estimate of this plan is \$10M. Much of the distribution line additions associated with the recommended option would be required under this plan. This alternative is not recommended because of the higher cost, the need to find a suitable parcel of land, and the potential permitting and environmental challenges associated with building on a new site.

Alternative 2 (\$16M):

This plan would require significant substation and sub-transmission work. Substation work would include the installation of a new modular feeder at Warwick



Short Form Sanction Paper

substation, the upgrade of the three existing Warwick substation feeders, and the addition of EMS to the station. Sub-transmission improvements would include the upgrade of the sub-transmission system between Drumrock and Warwick substations. Specific work would include upgrading approximately 12-miles of limiting conductors to 795 ACSR along congested residential city streets. The Investment Grade Estimate for this plan is \$16M. This plan is not recommended because of the comparatively higher cost to the recommended plan.

Alternative 3 (\$0M):

This deferral plan does not address the projected normal and contingency overloads and exposes the Company to increasing load supply and customer outage risks.

2.2 Investment Recovery

Investment recovery will be through standard rate recovery mechanisms.

2.2.1 Customer Impact

This project results in an indicative first full year revenue requirement when the asset is placed in service equal to approximately \$0.540 million. This is indicative only. The actual revenue requirement will differ, depending upon the timing of the next rate case and/or the timing of the next filing in which the project is included in rate base.

3 Related Projects, Scoring, Budgets

3.1 Summary of Projects:

Project Number	Project Type (Elec only)	Project Title	Estimate Amount (\$M)
C036516	D-Line	Kilvert St Feeders	\$ 3.831
Total			\$ 3.831

3.2 Associated Projects:

Project Number	Project Title	Estimate Amount (\$M)
C036522	Kilvert Street #87 Substation Second Transform	\$1.934M

3.3 Prior Sanctioning History (including relevant approved Strategies):

Date	Governance Body	Sanctioned Amount	Paper Title	Sanction Type
August 8, 2012	USSC-12-346	\$0.300M	Kilvert Street New Feeders	Partial Sanction

3.4 Category:



Short Form Sanction Paper

Category	Reference to Mandate, Policy, or NPV Assumptions
<input type="radio"/> Mandatory <input checked="" type="radio"/> Policy- Driven <input type="radio"/> Justified NPV	National Grid, USA EO Internal Strategy Document Distribution Planning Criteria Strategy.

Asset Management Risk Score: 42

Primary Risk Score Driver: (Policy Driven Projects Only)

- Reliability
 Environment
 Health & Safety
 Not Policy Driven

3.5 Complexity Level:

- High Complexity
 Medium Complexity
 Low Complexity
 N/A

Complexity Score: 20

4 Financial

4.1 Business Plan:

Business Plan Name & Period	Project included in approved Business Plan?	Over / Under Business Plan	Project Cost relative to approved Business Plan (\$)
FY14-FY18 NE Distribution Capital Plan	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input checked="" type="radio"/> Over <input type="radio"/> Under <input type="radio"/> NA	\$(.323M)



Short Form Sanction Paper

4.1.1 If cost > approved Business Plan how will this be funded?

4.2 CIAC / Reimbursement

\$M	Prior Yrs	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	Total
		2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	
CIAC/Reimbursement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

4.3 Cost Summary Table

Project Number	Project Title	Project Estimate	Spend	Prior Yrs	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	Total
					2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	
C036516	Kilvert St Feeders	Est Lvl	CapEx	0.017	1.736	1.390	-	-	-	-	3.143
			OpEx	0.001	0.097	0.067	-	-	-	-	0.165
			Removal	0.001	0.376	0.146	-	-	-	-	0.523
			Total	0.019	2.209	1.603	-	-	-	-	3.831

4.4 Project Budget Summary Table

	Prior Yrs (Actual)	Current Planning Horizon (\$M)						Total
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
		2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	
CapEx	\$ -	\$ 0.300	\$ 1.300	\$ 1.350	\$ -	\$ -	\$ -	\$ 2.950
OpEx	\$ -	\$ 0.015	\$ 0.065	\$ 0.068	\$ -	\$ -	\$ -	\$ 0.148
Removal	\$ -	\$ 0.040	\$ 0.182	\$ 0.189	\$ -	\$ -	\$ -	\$ 0.411
Total Cost in Bus. Plan	\$ -	\$ 0.355	\$ 1.547	\$ 1.607	\$ -	\$ -	\$ -	\$ 3.509

Variance (Business Plan-Project Estimate)

	Prior Yrs (Actual)	Current Planning Horizon (\$M)						Total
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
		2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	
CapEx	\$ (0.017)	\$ (1.436)	\$ (0.090)	\$ 1.350	\$ -	\$ -	\$ -	\$ (0.193)
OpEx	\$ (0.001)	\$ (0.082)	\$ (0.002)	\$ 0.068	\$ -	\$ -	\$ -	\$ (0.018)
Removal	\$ (0.001)	\$ (0.336)	\$ 0.036	\$ 0.189	\$ -	\$ -	\$ -	\$ (0.112)
Total Cost in Bus. Plan	\$ (0.019)	\$ (1.854)	\$ (0.056)	\$ 1.607	\$ -	\$ -	\$ -	\$ (0.323)

5 Key Milestones:

Milestone	Target Date: (Month/Year)
Engineering & Design Complete	July, 2013
Project Sanction	August, 2013
Construction Start	September 2013
Construction Finish	June, 2015
Ready For Load	June, 2015



Short Form Sanction Paper

6 Statements of Support

6.1.1 Supporters

Role	Name	Responsibilities
Investment Planner	DiConza, Glen	Endorses relative to 5-year business plan or emergent work.
Resource Planning	Patterson, Jim	Endorses Resources, cost estimate, schedule, and Portfolio Alignment
Engineering and Design	Sheridan, Robert D.	Endorses scope, design, conformance with design standards
Project Management	Moore, Timothy	Endorses Resources, cost estimate, schedule

6.1.2 Reviewers

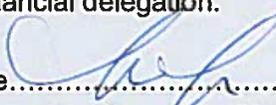
Reviewers read the paper for content / language and recommends edits if necessary.

Reviewer List	Name
Finance	Keith Fowler
Regulatory	Gideon Katsh
Jurisdictional Delegates	Jennifer Grimsley
Procurement	Art Curran
Control Center (CC)	Michael Gallagher

Short Form Sanction Paper



7. Decisions:

I:	
(a)	APPROVE this paper and the investment of \$3.83MM and a tolerance of +/-10%
(b)	NOTE that Kathleen Hurley is the Project Manager and has the approved financial delegation.
Signature.....	
	Date..... 8/14/13
Executive Sponsor – Marie Jordan, Senior Vice President, Network Strategy	

Short Form Sanction Paper



C036522

Kilvert St 87 - Install TB#2

5360-Narragansett Electric and Gas Project Revision Detail Report

Fund Project Number: <u>C036522</u>	USSC #: <u>USSC-12-080 v4</u>
Revision: <u>7</u>	Budget Version: <u>Default</u>
Project Title: <u>Kilvert St 87 - Install TB#2</u>	
Project Description: This project recommends the installation of a second 1-33/44/55 MVA 115/12.47 kV power transformer (TB#2).	

Project Status: <u>open</u>	
Responsible Person: <u>ARCHER, SEAN</u>	Initiator: <u>Shields, Ryan</u>
Spending Rationale: <u>System Capacity & Performance</u>	Funding Type: <u>P Electric Distribution Sub RI</u>
Budget Class: <u>Load Relief</u>	
Capital by Category:	
Program Code:	
Project Risk Score: <u>39</u>	Project Complexity Score: <u>21</u>

Project Schedule / Expenditures

Revision Status: <u>Approved</u>				
Est Start Date: <u>6/1/2011</u>	Est Complete Date: <u>3/31/2017</u>			
Est In-Service Date: <u>9/1/2016</u>				
TTD Actuals: <u>\$3,771,186</u>	As Of: <u>10/2/2017</u>			
Cost Breakdown				
<u>Capital</u>	<u>Expense</u>	<u>Removal</u>	<u>Total</u>	<u>Credits</u>
<u>\$3,740,000</u>	<u>\$0</u>	<u>\$24,000</u>	<u>\$3,764,000</u>	<u>\$0</u>

Justification / Risk Identification:

Kilvert 87 TB#1 is a 1-33/44/55 MVA 115/12.47 kV transformer loaded to 25.2 MVA, or 38% of its summer normal rating (67 MVA) and 30% of its summer emergency rating (84 MVA), during the summer peak of 2010.

A failure of the existing Kilvert TB#1 will result in outages, yielding approximately 20.4 MVA of unserved load, or 490 MWh. Furthermore, a recommendation has been made within the 15-year planning horizon to install an additional transformer at Kilvert St. Substation.

Project Scope:

Distribution Substation (DxD) work associated with the installation of a second 1-33/44/55 MVA 115/12.47 kV power transformer.

This project recommends the installation of two bus-tie circuit breakers, a low-side air break switch, fuse to station service, and relaying/protection associated with the installation of a second 1-33/44/55 MVA 115/12.47 kV power transformer at Kilvert St. Substation.

Project Alternatives Considered:

<Enter data here>

Additional Notes:

Cost estimates are based on a template provided by Substation Engineering - "Generic Cost Estimates for Substation Work (February 2009)"

Partial Sanction \$300K over 3 projects Distribution PPM9312 Transmission C42083 C42084. Will allocate \$100K over 3 projects.

Related Projects:

Project Number:

Project Name:

Approvals

Line 1:	Date	<u>12/2/2015 12:50:52</u>	Approver	<u>carlim</u>	<u>USSC Approver</u>
Line 2:	Date		Approver		
Line 3:	Date		Approver		
Line 4:	Date		Approver		
Line 5:	Date		Approver		

*****Project Authorization is for Approved Revision Total Estimated Cost +10%*****

REDACTED - CEII Information has been Redacted

PowerPlan ----- PPGPRD Database

File Edit Subsystem Batch Admin Preferences Window Help

Projects Assets Tables CR MyPlan Help Calc Print Win

Funding Project Estimates - Summary C036522 Current Total Authorized Amount: \$3,76...

Title
 Project Number

Budget Version	Default (active)
Revision	v4
Revision Status	Approved
Revision No.	7
Est Start Date	06/01/2011
Est Complete Date	03/31/2017
Est In Srvc Date	09/01/2016
Capital	\$3,740,000.00
Expense	\$0.00
Jobbing	\$0.00
Retirement	\$0.00
Removal	\$24,000.00
Total (excl. Ret.s.)	\$3,764,000.00
Credits	\$0.00
Net	\$3,764,000.00

Revision Info

Revision of 7

Show 'Budget Only' Revisions

Spending Estimates:

Property Estimates:

Edit:

Other:

Record of 1

B+T

This document has been reviewed for Critical Energy Infrastructure Information (CEII)



Short Form Sanction Paper

Title:	Kilvert Street #87 Substation Second Transformer & Two New Feeder Positions	Sanction Paper #:	USSC-12-080-v4
Project #s:	C036522, C042083, & C042084	Sanction Type:	Sanction
Operating Company:	The Narragansett Electric Co.	Date of Request:	November 17, 2015
Author:	Sean Archer / Andrew Schneller	Sponsor:	John Gavin Vice President – Electric Asset Management
Utility Service:	Electricity T&D	Project Manager:	Sean Archer / Andrew Schneller

1 Executive Summary

1.1 Sanctioning Summary

This paper requests sanction of Kilvert Street #87 Substation Second Transformer & Two New Feeder Positions Projects in the amount of \$5.364 M with a tolerance of +/- 10% for the purposes of complete project execution and closure.

This sanction amount is \$5.364 M broken down into:

- \$5.320 M Capex
- \$0.006 M Opex
- \$0.038 M Removal

1.2 Project Summary

This project addresses load at risk at Kilvert Street substation; feeder loading in the area of the Drumrock, Lincoln Avenue, and Warwick substations; power transformer loading at the Warwick substation; and sub-transmission system normal/contingency loading issues on the Drumrock substation 23 kV 2222, 2262, and 2264 feeders by expanding the Kilvert Street substation.

The project adds a second 115 kV tap line, a second 115-12.47 kV power transformer, and two 12.47 kV feeders at the Kilvert Street substation. The project also upgrades the existing Kilvert Street substation 12.47 kV capacitor bank power cable and adds a second 12.47 kV capacitor bank.



Short Form Sanction Paper

2 Project Detail

2.1 Background

During the 2010 Annual Planning process, a review of the Kilvert Street # 89 substation was performed along with the surrounding area. For this review the most recent Distribution Planning Criteria Strategy was utilized. This review identified a significant amount of un-served distribution load for loss of the existing Kilvert Street substation transformer. To mitigate this risk, the review recommended the installation of the second Kilvert Street substation transformer. This Paper includes the substation and transmission line facilities necessary to install the second transformer.

Kilvert Street substation was built in 2004 and supplies distribution load in the cities of Cranston and Warwick, Rhode Island. The substation is a 115-12.47 kV low profile design with a single 33/44/55 MVA transformer supplying four feeders. Kilvert Street substation supplies approximately 3,250 customers with a peak load of approximately 29 MW.

Kilvert Street was built to relieve the area's highly utilized distribution system and to supply load growth occurring in and around T.F. Green Airport. The station was designed and permitted for two 33/44/55 MVA power transformers and eight distribution feeders. To date, a single 33/44/55 MVA transformer supplying four distribution feeders has been installed.

To address the load at risk at Kilvert Street substation, this paper recommends that a second 115/13.2 kV, 33/44/55 MVA power transformer be installed at this substation, a steel H-frame deadend switch structure and manual 115 kV switch be installed in the J-188 line in the transmission right-of-way, and a 115 kV transmission line tap be installed from the J-188 line to Kilvert Street substation. The installation of the second transmission line tap and power transformer, along with two 12.47 kV tie circuit breakers, would result in no un-served load exposure for loss of one of the two 115-12.47 kV Kilvert Street substation transformers.

To address reliability concerns in the City of Warwick, Rhode Island, this Paper recommends the installation of two 12.47 kV feeder positions that would serve as sources for two new feeders proposed in Funding Project C036516, currently in construction. This recommendation is also supported by the approved Partial Sanction Paper USSC-12-346.

2.2 Drivers

Load At Risk: The main driver for this project is load at risk in the cities of Cranston and Warwick, Rhode Island for loss of the single Kilvert Street substation transformer. An outage of the Kilvert Street substation transformer would result in the loss of 29 MW of load. Of this load, approximately 14 MW could be transferred to other area stations



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through feeder ties leaving 15 MW of load un-served until a spare or mobile transformer would be installed at Kilvert Street. This would result in an exposure of 400MWH.

By 2016 peak load at Kilvert Street is projected at 32 MW. This load would result in approximately 23 MW of un-served load for loss of the single Kilvert Street substation transformer until a spare or mobile transformer would be installed. This would result in an exposure of 567 MWH.

Feeder Loading: Loading on three feeders in this area is projected to exceed summer normal ratings within the next five years. Load transfers have been used in the past to defer the need for infrastructure investment, but further transfers are no longer possible. New capacity is required to address projected feeder overloads.

Transformer Loading: In 2016, loading on the Warwick T1 transformer is projected at 113% of its Summer Normal (SN) rating. In 2017, loading on the Warwick T4 transformer is projected at 101% of its SN rating. Relief of these transformers is not possible without adding new capacity.

Sub-Transmission System (Normal Loading): In 2020, loading on the 2222 sub-transmission line is projected at 100% of Summer Normal (SN) rating. In 2023, loading on the 2262 sub-transmission line is projected at 100% of SN rating.

Sub-Transmission System (Contingency Loading): Contingency loading on four sub-transmission lines is projected to exceed summer emergency ratings within the next five years. Block transfers are utilized to prevent line overloads. These block transfers have a negative impact on reliability and make operating this system costly and challenging since block transfers have to be made manually due to lack of remote control capabilities.

2.3 Kilvert Street #89 Substation Project Description

Transmission Line

- Install one (1) 115 kV wood two-pole terminal deadend tap structure and tap line from the existing J-188 line to the substation.
- Install one (1) 115 kV 2000 A loadbreak switch and steel H-Frame deadend structure in the J-188 line to the north of the substation.
- Replace disc insulator strings and install restraining insulators on (1) 115 kV suspension structure.

Transmission Substation

- Install one (1) deadend structure for the 115 kV transmission line tap.
- Install one (1) 115 kV circuit switcher.



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Distribution Substation

- Install the following equipment:
 - One (1) 115-12.47 kV power transformer
 - One (1) 12.47 kV transformer disconnect switch
 - Six (6) 12.47 kV circuit breakers
 - Two (2) 12.47 kV feeder positions
 - Six (6) 12.47 kV feeder voltage regulators with bypass switches
 - One 12.47 kV capacitor bank
 - Associated primary, secondary, communications, control, metering, and protective relay equipment.

- Replace existing underground power cable from 12.47 kV Bus #2 to Capacitor Bank #2.

2.4 Benefits

The recommended plan is in-line with the long-term plan for this area to continue the expansion of Kilvert Street substation to supply load growth in and around the T.F. Green Airport area and to relieve load on the area's highly utilized sub-transmission and distribution system. The plan resolves un-served load exposure and projected overloads in the area at the least cost.

2.5 Business & Customer Issues

The proposed project is in the approved capital plans. A Full Sanction Paper would be prepared and presented after completion of final engineering and design.

2.6 Alternatives

Alternative 1: Development of a New Substation (\$8.0 M)

Alternative 1 recommends development of a new 115-12.47 kV substation adjacent to the existing 115 kV transmission right-of-way on a new site near the intersection of East Avenue and Greenwich Avenue in the city of Warwick. This substation would be supplied from the adjacent 115kV transmission lines. Initially, the substation would be equipped with a single 24/32/40 MVA transformer and two feeders. Land would have to be acquired to site this proposed substation. The Investment Grade Estimate of this plan is \$8.0 M. This alternative is not recommended because of the higher cost, the need to obtain a suitable parcel of land, and the potential permitting challenges associated with building on a new site.



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Alternative 2: Development of a New Substation (\$8.2 M)

Alternative 2 recommends development of a new 23-12.47 kV modular substation with two feeders at Hillsgrove, a former 4.16kV substation site on Jefferson Boulevard in the city of Warwick just north of T. F. Green airport. This plan requires a major expenditure to reinforce the 23kV supply system to provide capacity to supply the proposed Hillsgrove substation. The Investment Grade Estimate of this plan is \$8.2M. This plan is not recommended because it offers no advantages over the Recommended Plan or Alternative 1.

Alternative 3: Do Nothing

This alternative would not address projected normal and contingency overloads and would expose the Company to increasing load supply and customer outage risks. This alternative is not recommended.

2.7 Investment Recovery

2.7.1 Customer Impact

Distribution Project

Project C036522 results in an indicative first full year revenue requirement when the asset is placed in service equal to approximately \$0.641 M. This is indicative only. The actual revenue requirement will differ, depending upon the timing of the next rate case and/or the timing of the next filing in which the project is included in rate base.

Transmission Projects

Projects C042083 and C042084 result in an indicative first full year revenue requirement when the asset is placed in service equal to approximately \$0.243 M. This is indicative only. Recovery is through Local Network Service (LNS) rates

3 Related Projects, Scoring, Budgets

3.1 Summary of Projects

Project Number	Project Type (Elec only)	Project Title	Estimate Amount (\$M)
C036522	D-Sub	Kilvert Street D-Sub	3.764
C042083	T-Sub	Kilvert Street T-Sub	0.951
C042084	T-Line	Kilvert Street T-Line	0.648
Total			5.364



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3.2 Associated Projects

Project Number	Project Title	Estimate Amount (\$M)
C036516	Kilvert Street New Feeders	3.831
Total		3.831

3.3 Prior Sanctioning History

Date	Governance Body	Sanctioned Amount	Potential Project Investment	Paper Title	Sanction Type	Tolerance
July 28, 2015		\$2.458 M	\$4.418 M	Kilvert Street #87 Substation Second Transformer & Two New Feeder Positions	Partial	+/- 25%
May 28, 2013	USSC	\$1.934 M	\$4.247 M	Kilvert Street #87 Substation Second Transformer & Two New Feeder Positions	Partial	+/- 25%
April 11, 2012	USSC	\$0.300 M	\$3.200 M	Kilvert Street – 2 nd Transformer	Partial	- 25% to + 50%



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3.4 Category

Category	Reference to Mandate, Policy, NPV, or Other
<input type="radio"/> Mandatory <input checked="" type="radio"/> Policy- Driven <input type="radio"/> Justified NPV <input type="radio"/> Other	National Grid USA EO Internal Strategy Document Distribution Planning Criteria Strategy

3.5 Asset Management Risk Score

Asset Management Risk Score: 39

Primary Risk Score Driver: (Policy Driven Projects Only)

- Reliability
 Environment
 Health & Safety
 Not Policy Driven

3.6 Complexity Level

- High Complexity
 Medium Complexity
 Low Complexity
 N/A

Complexity Score: 21

3.7 Next Planned Sanction Review

Date (Month/Year)	Purpose of Sanction Review
March 2017	Closure



Short Form Sanction Paper

4 Financial

4.1 Business Plan

Business Plan Name & Period	Project included in approved Business Plan?	Over / Under Business Plan	Project Cost relative to approved Business Plan (\$)
Transmission – Current FY16 – FY20 Spending Plan	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input checked="" type="radio"/> Over <input type="radio"/> Under <input type="radio"/> NA	\$0.325 M
Distribution – Current FY16 – FY20 Spending Plan	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input checked="" type="radio"/> Over <input type="radio"/> Under <input type="radio"/> NA	\$0.536 M

4.1.1 If cost > approved Business Plan how will this be funded?

Re-allocation of funds within the portfolio will be managed by Resource Planning to meet jurisdictional budgetary, statutory and regulatory requirements.

4.2 CIAC / Reimbursement

N/A



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4.3 Cost Summary Table

Project Number	Project Title	Project Estimate Level (%)	Spend	Prior Yrs	Current Planning Horizon (\$M)						Total
					Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
C036522	Kilvert Street D-Sub	+/- 25%	CapEx	1,291	1,698	0,751	-	-	-	-	3,740
			OpEx	-	-	-	-	-	-	-	-
			Removal	-	0,012	0,012	-	-	-	-	0,024
			Total	1,291	1,710	0,763	-	-	-	-	3,764
C042083	Kilvert Street T-Sub	+/- 25%	CapEx	0,272	0,267	0,412	-	-	-	-	0,951
			OpEx	-	-	-	-	-	-	-	-
			Removal	-	-	-	-	-	-	-	-
			Total	0,272	0,267	0,412	-	-	-	-	0,951
C042084	Kilvert Street T-Line	+/- 25%	CapEx	0,051	0,524	0,054	-	-	-	-	0,629
			OpEx	0,001	0,005	-	-	-	-	-	0,006
			Removal	-	0,014	-	-	-	-	-	0,014
			Total	0,052	0,543	0,054	-	-	-	-	0,649
Total Project Sanction			CapEx	1,614	2,489	1,217	-	-	-	-	5,320
			OpEx	0,001	0,005	-	-	-	-	-	0,006
			Removal	-	0,026	0,012	-	-	-	-	0,038
			Total	1,615	2,520	1,229	-	-	-	-	5,364

4.4 Project Budget Summary Table

\$M	Prior Yrs (Actual)	Current Planning Horizon (\$M)						Total
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
CapEx	0.323	0.547	0.000	0.000	0.000	0.000	0.000	0.870
OpEx	0.001	0.006	0.000	0.000	0.000	0.000	0.000	0.007
Removal	0.000	0.011	0.000	0.000	0.000	0.000	0.000	0.011
Total Cost in Bus. Plan	0.324	0.564	0.000	0.000	0.000	0.000	0.000	0.888

Variance (Transmission Business Plan - Project Estimate)

\$M	Prior Yrs (Actual)	Current Planning Horizon (\$M)						Total
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
CapEx	0.000	(0.244)	(0.466)	0.000	0.000	0.000	0.000	(0.710)
OpEx	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.001
Removal	0.000	(0.003)	0.000	0.000	0.000	0.000	0.000	(0.003)
Total Cost in Bus. Plan	0.000	(0.246)	(0.466)	0.000	0.000	0.000	0.000	(0.712)



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Project Costs per Distribution Business Plan

\$M	Prior Yrs (Actual)	Current Planning Horizon (\$M)						Total
		Yr. 1 2015/16	Yr. 2 2016/17	Yr. 3 2017/18	Yr. 4 2018/19	Yr. 5 2019/20	Yr. 6 + 2020/21	
CapEx	1.291	1.100	0.200	0.000	0.000	0.000	0.000	2.591
OpEx	0.000	0.044	0.008	0.000	0.000	0.000	0.000	0.052
Removal	0.000	0.022	0.004	0.000	0.000	0.000	0.000	0.026
Total Cost in Bus. Plan	1.291	1.166	0.212	0.000	0.000	0.000	0.000	2.669

Variance (Distribution Business Plan - Project Estimate)

\$M	Prior Yrs (Actual)	Current Planning Horizon (\$M)						Total
		Yr. 1 2015/16	Yr. 2 2016/17	Yr. 3 2017/18	Yr. 4 2018/19	Yr. 5 2019/20	Yr. 6 + 2020/21	
CapEx	0.000	(0.598)	(0.551)	0.000	0.000	0.000	0.000	(1.149)
OpEx	0.000	0.044	0.008	0.000	0.000	0.000	0.000	0.052
Removal	0.000	0.010	(0.008)	0.000	0.000	0.000	0.000	0.002
Total Cost in Bus. Plan	0.000	(0.544)	(0.551)	0.000	0.000	0.000	0.000	(1.095)

5 Key Milestones

Milestone	Target Date: (Month/Year)
Start Preliminary Engineering (kick-off meeting)	May 2012
Planning Sanction	May 2013
Engineering Design Complete - EDC	January 2015
Partial Sanction	July 2015
Project Sanction	November 2015
Construction Start	November 2015
Ready for Load - RFL	September 2016
Construction Complete - CC	September 2016
Project Closure Sanction	March 2017

6 Statements of Support

6.1.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Role	Individual	Responsibilities
Investment Planning	Michelle Park	Transmission & Distribution – New England
Resource Planning	Mark Phillips	Trans Line & Substation – New England
Resource Planning	Anne Wyman	Dist Line – New England



Short Form Sanction Paper

Role	Individual	Responsibilities
Asset Management / Planning	Kasia Kulbacka	Trans Line / Substation & Sub-Trans Line – New England
Asset Management / Planning	Alan LaBarre	Dist Line / Substation & Sub-Trans Line – New England
Engineering & Design	Suzan Martuscello	Substations
Engineering & Design	Mark Browne	Trans & Sub-Trans Line
Engineering & Design	Leonard Swanson	Protection & Telecom
Project Management	Andrew Schneller	All New England

6.1.2 Reviewers

The reviewers have provided feedback on the content/language of the paper.

Reviewer List	Individual
Finance	Keith Fowler
Finance	Philip Horowitz
Regulatory	Peter Zschokke
Jurisdictional Delegates	Jim Patterson
Jurisdictional Delegates	Carol Sedewitz
Procurement	Art Curran
Control Center	Will Houston
Control Center	Michael Gallagher

6.1.3 List References

1	National Grid USA EO Internal Strategy Document Distribution Planning Criteria Strategy
2	
3	



Short Form Sanction Paper

7 Decisions

I:

(a) APPROVE the investment of \$5.364M and a tolerance of +/- 10% for the purposes of complete execution and closure.

(b) NOTE that Sean Archer is the Project Manager and Andrew Schneller has the approved financial delegation to undertake the activities stated in (a).

Signature..........Date 1/23/15.....

Executive Sponsor – Marie Jordan, Senior Vice President, Electric Process and Engineering



Short Form Sanction Paper

8 Other Appendices

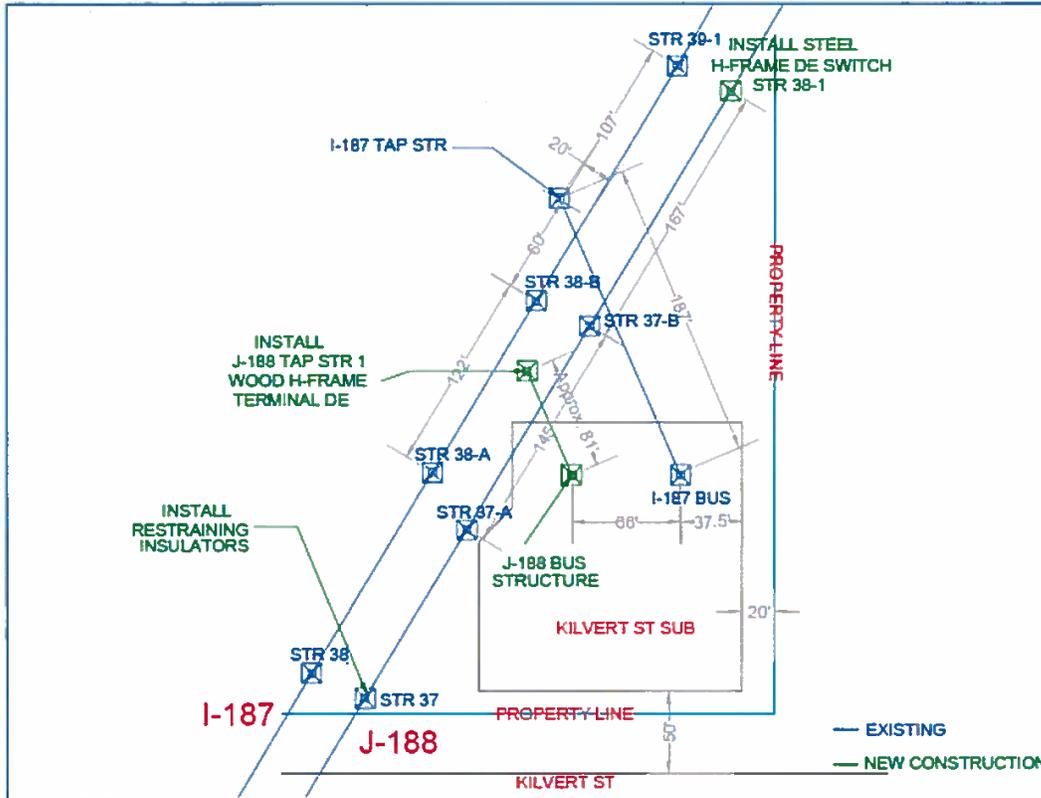
8.1 Sanction Request Breakdown by Project

N/A.



Short Form Sanction Paper

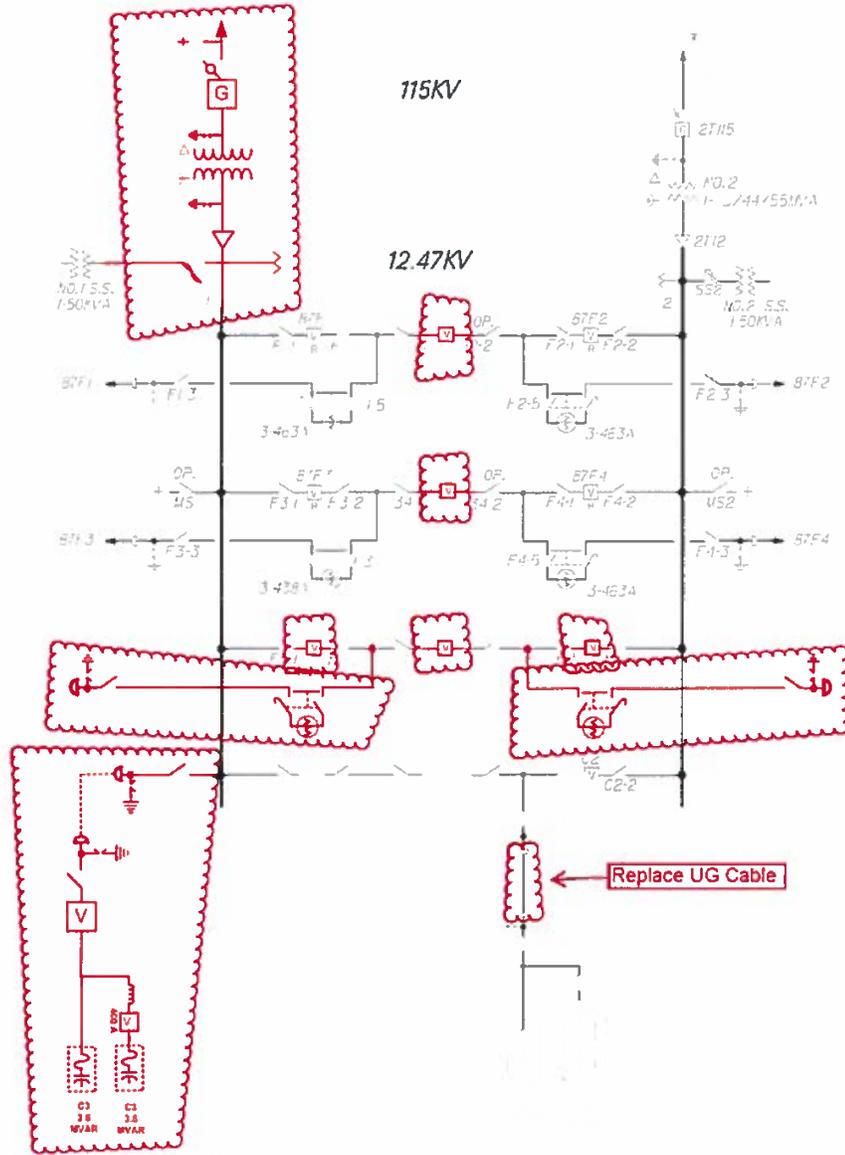
Sketch of J-188 Tap & Mainline Construction





Short Form Sanction Paper

8.2 Kilvert Street Substation Proposed One-Line Diagram



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KILVERT ST. NO. 87
OCEAN STATE DIVISION

OS5281

11-2-10

C043085

D/F Sockanosset #2 TRF

5360-Narragansett Electric and Gas Project Revision Detail Report

Fund Project Number: <u>C043085</u>	USSC #: <u>USSC-12-177C</u>
Revision: <u>2</u>	Budget Version:
Project Title: <u>D/F Sockanosset #2 TRF</u>	
Project Description: We had a conference call at 13:00 on Wednesday, 21 March 2012 about the 2 Transformer failure and subsequent replacement at Sockanosset substation in Warwick, RI. Rich St. Andre, Mike Morin, Mike Dembkowski, Chris Araujo, Endrit Fiku, Terrie Spada, Matt Pires, Paul Tomak, Dave Sherman, Mike Freitas, and Mike Wolf were on the call.	

Project Status: <u>Closed</u>	
Responsible Person: <u>PHILLIPS, MARK</u>	Initiator: <u>Swiderski, Stanley W</u>
Spending Rationale: <u>Damage/Failure</u>	Funding Type: <u>P Dist by Transmission Sub RI</u>
Budget Class: <u>Damage/Failure</u>	
Capital by Category:	
Program Code:	
Project Risk Score: <u>49</u>	Project Complexity Score: <u>18</u>

<u>Project Schedule / Expenditures</u>					
Revision Status: <u>Approved</u>					
Est Start Date: <u>3/27/2012</u>				Est Complete Date: <u>4/30/2012</u>	
Est In-Service Date: <u>4/30/2012</u>					
TTD Actuals: <u>\$1,236,784</u>				As Of: <u>10/2/2017</u>	
Cost Breakdown	<u>Capital</u>	<u>Expense</u>	<u>Removal</u>	<u>Total</u>	<u>Credits</u>
	<u>\$1,189,000</u>	<u>\$4,000</u>	<u>\$44,000</u>	<u>\$1,237,000</u>	<u>\$0</u>

<u>Justification / Risk Identification:</u> <Enter data here>
<u>Project Scope:</u> <Enter data here>
<u>Project Alternatives Considered:</u>

<Enter data here>

Additional Notes:

<Enter data here>

Related Projects:

Project Number:

Project Name:

Approvals

Line 1:	Date	<u>3/29/2017 12:33:04</u>	Approver	<u>monted</u>	<u>USSC Approver</u>
Line 2:	Date		Approver		
Line 3:	Date		Approver		
Line 4:	Date		Approver		
Line 5:	Date		Approver		

*****Project Authorization is for Approved Revision Total Estimated Cost +10%*****

REDACTED - CEII Information has been Redacted

PowerPlan ----- PPGPRD Database

File Edit Subsystem Batch Admin Preferences Window Help

Projects Assets Tables CR MyPPlan Help Calc Print Win

Funding Project Estimates - Summary C043085 Current Total Authorized Amount: \$1,23...

Title
 Project Number

Budget Version	No Assigned Versions
Revision	Closure
Revision Status	Approved
Revision No.	<input type="text" value="2"/>
Est Start Date	03/27/2012
Est Complete Date	12/01/2012
Est In Srvc Date	04/30/2012
Capital	\$1,189,000.00
Expense	\$4,000.00
Jobbing	\$0.00
Retirement	\$0.00
Removal	\$44,000.00
Total (excl. Ret.)	\$1,237,000.00
Credits	\$0.00
Net	\$1,237,000.00

Revision Info

Revision of 2

[Find Revision](#)

Show 'Budget Only' Revisions

Spending Estimates:

Property Estimates:

Edit:

Other:

Record of 1

This document has been reviewed for Critical Energy Infrastructure Information (CEII).



USSC Closure Paper

Title:	D/F Sockanosset #2TRF	Sanction Paper #:	USSC-12-177C
Project #:	C043085	Sanction Type:	Closure
Operating Company:	The Narragansett Electric Co.	Date of Request:	12/6/16
Author:	Mark A Phillips	Sponsor:	Carol Sedewitz, VP Electric Asset Management
Utility Service:	Electricity T&D	Project Manager:	Mark A Phillips

1 Executive Summary

This paper is presented to close C043085. The total spend was \$1.237M. The sanctioned amount for this project was \$1.750M.

The final spend amount is \$1.237M broken down into:

- \$1.189M Capex
- \$0.004M Opex
- \$0.044M Removal

2 Project Summary

This project installed a system spare to replace a failed unit at Sockanosset Station in Rhode Island on March 21, 2012 and a replacement spare transformer was purchased. This was required after a 23kV line fell off its pin insulator and dropped down onto a 12.47kV circuit. The feeder breaker tripped and reclosed, but the transformer failed upon the first reclose. The failed transformer was a 1972 GE 115-24kV;24/32/40 MVA unit. The new system spare transformer will be stored in Sutton.

3 Over / Under Expenditure Analysis



USSC Closure Paper

3.1 Summary Table

Actual Spending (\$M)			
Project #	Description		Total Spend
C043085	D/F Sockanosset #2 TRF	Capex	1.189
		Opex	0.004
		Removal	0.044
		Total	1.237
Total		Capex	1.189
		Opex	0.004
		Removal	0.044
		Total	1.237

Project Sanction Summary Table			
Project Sanction Approval (\$M)			Total Spend
		Capex	1.750
		Opex	0.000
		Removal	0.000
		Total Cost	1.750
Sanction Variance (\$M)			Total Spend
		Capex	0.561
		Opex	(0.004)
		Removal	(0.044)
		Total Variance	0.513

3.2 Analysis

This damage failure project was sanctioned based on conceptual estimate for transformer costs prior to receiving bids from manufacturer. Actual costs reflect lower expenditure for the replacement of the bank.

4 Improvements / Lessons Learned

It is beneficial to use two work order numbers for a damage failure replacement. One work order is used to cover the installation of a spare unit and a second to cover the purchase of the replacement spare unit. This allows placing the equipment in service financially as soon as practical without having to wait until the rest of the project complete.



USSC Closure Paper

5 Closeout Activities

The following closeout activities have been completed.

Activity	Completed
All work has been completed in accordance with all National Grid policies	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All work orders and funding projects have been closed	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All as-builts have been completed	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All lessons learned have been entered appropriately into the lesson learned database	<input checked="" type="radio"/> Yes <input type="radio"/> N/A

6 Statements of Support

6.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
<i>Investment Planning</i>	Glen DiConza	Endorses relative to 5-year business plan or emergent work
<i>Resource Planning</i>	Mark Phillips	Endorses construction resources, cost estimate, schedule, and portfolio alignment
Asset Management/Planning	Alan T. Labarre	Endorses scope, estimate, and schedule with the company's goals, strategies, and objectives
Engineering and Design	Suzan E. Martuscello	Endorses scope, design, conformance with design standards
Project Management	Andrew Schneller Sonny Anand	Endorses resources, cost estimate, schedule



USSC Closure Paper

6.2 Reviewers

The reviewers have provided feedback on the content/language of the paper.

Function	Individual
Finance	Patricia Easterly
Regulatory	Peter Zschokke
Jurisdictional Delegate(s)	Jim Patterson
Procurement	Art Curran
Control Centers (CC)	Michael Gallagher/Will Houston

USSC Closure Paper



7 Decisions

I approve this paper.

Signature.....*CK*.....Date...*3/24/17*.....

Christopher Kelly

Senior Vice President Electric Process and Engineering

C044972

LN13_Paving and sewer

Additional Notes:

Related Projects:

Project Number:

Project Name:

Approvals

Line 1:	Date <u>12/10/2013 13:57:07</u>	Approver <u>burnsp</u>	<u>Approver 1</u>
Line 2:	Date	Approver	
Line 3:	Date	Approver	
Line 4:	Date	Approver	
Line 5:	Date	Approver	

*****Project Authorization is for Approved Revision Total Estimated Cost +10%*****

REDACTED - CEII Information has been Redacted

PowerPlan ----- PPGPRD Database

File Edit Subsystem Batch Admin Preferences Window Help

Projects Assets Tables CR MyPPlan Help Calc Print: Win

Funding Project Estimates - Summary C044972 Current Total Authorized Amount: \$621,...

Title LN13_Paving and sewer
Project Number C044972

Budget Version Default (active)

Revision Increase DOA
Revision Status Approved
Revision No. 2
Est Start Date 10/15/2012
Est Complete Date 09/01/2013
Est In Srvc Date 12/31/2012

Capital	\$521,360.00
Expense	\$0.00
Jobbing	\$0.00
Retirement	\$0.00
Removal	\$100,500.00
Total (excl. Rets.)	\$621,860.00
Credits	\$0.00
Net	\$621,860.00

Revision Info Other Updates

Revision 2 of 2
[Find Revision](#) Send for Approval

Show 'Budget Only' Revisions

Spending Estimates:

Grid Estimates
Forecast
Summarize from W/O
Copy Estimate

Property Estimates:

Unit Estimates
Create As Built
Delete Used Estimates

Edit:

New Revision
Delete Revision
Update
Update With Actuals
Import Estimates

Other:

Revision Comments
Released Dollars
Substitution
Slide

Version Compare Close

Record 1 of 1

Audits

C045657

DOTR-Repl Bridges No.475 & 476 E.P.

5360-Narragansett Electric and Gas Project Revision Detail Report

Fund Project Number: <u>C045657</u>	USSC #: -
Revision: <u>2</u>	Budget Version: <u>Default</u>
Project Title: <u>DOTR-Repl Bridges No.475 & 476 E.P.</u>	
Project Description: 100% Reimbursable-RIDOT has proposed replacement of East Shore Expressway Bridge No. 475 (over Warren Avenue) and McCormick Auarry Bridge No. 476 (over Warren Avenue) in East Providence. This authorization is for preliminary engineering to determine scope of work with RIDOT	

Project Status: <u>open</u>	
Responsible Person: <u>CAPOBIANCO, THOMAS</u>	Initiator: <u>Capobianco III, Thomaz</u>
Spending Rationale: <u>Customer Request/Public Requirement</u>	Funding Type: <u>P Electric Distribution Line RI</u>
Budget Class: <u>Public Requirements</u>	
Capital by Category:	
Program Code:	
Project Risk Score: <u>49</u>	Project Complexity Score: <u>15</u>

Project Schedule / Expenditures

Revision Status: <u>Approved</u>					
Est Start Date: <u>12/18/2012</u>			Est Complete Date: <u>3/31/2017</u>		
Est In-Service Date: <u>3/31/2017</u>					
TTD Actuals: <u>\$278,417</u>			As Of: <u>10/2/2017</u>		
Cost Breakdown	<u>Capital</u>	<u>Expense</u>	<u>Removal</u>	<u>Total</u>	<u>Credits</u>
	<u>\$221,000</u>	<u>\$26,000</u>	<u>\$13,000</u>	<u>\$260,000</u>	<u>\$0</u>

Justification / Risk Identification:

RIDOT has proposed replacement of East Shore Expressway Bridge No. 475 (over Warren Avenue) and McCormick Auarry Bridge No. 476 (over Warren Avenue) in East Providence. This authorization is for preliminary engineering to determine scope of work with RIDOT.

Project Scope:

<Enter data here>

Project Alternatives Considered:

<Enter data here>

Additional Notes:

Sanction from \$50K to \$260K document attached. Original DOA for 50,000 was for preliminary engineering only. This is the final design estimate submitted to RI DOT for 100% reimbursement.

Related Projects:

Project Number:

Project Name:

Approvals

Line 1:	Date <u>10/8/2015 17:09:49</u>	Approver <u>curljo</u>	<u>DOA - Distribution Lev</u>
Line 2:	Date <u>10/12/2015 09:54:14</u>	Approver <u>Park, Michelle L</u>	<u>DOA - Distribution Lev</u>
Line 3:	Date <u>10/13/2015 11:00:41</u>	Approver <u>Hellmuth, Kevin J</u>	<u>DOA - Distribution Lev</u>
Line 4:	Date <u>10/16/2015 16:06:50</u>	Approver <u>Cox, Roger D</u>	<u>DOA - Distribution Lev</u>
Line 5:	Date <u>10/26/2015 14:04:20</u>	Approver <u>LaBarre, Alan T</u>	<u>DOA - Distribution Lev</u>

*****Project Authorization is for Approved Revision Total Estimated Cost +10%*****

REDACTED - CEII Information has been Redacted

PowerPlan ----- PPGPRD Database

File Edit Subsystem Batch Admin Preferences Window Help

Projects Assets Tables CR MyPPlan Help Calc Print Win

Funding Project Estimates - Summary C045657 Current Total Authorized Amount: \$260,...

Title: D0TR-Repl Bridges No.475 & 476 E.P.
 Project Number: C045657

Budget Version	Default (active)
Revision	SN Form
Revision Status	Approved
Revision No.	2
Est Start Date	12/18/2012
Est Complete Date	03/31/2017
Est In Srvc Date	03/31/2017
Capital	\$221,000.00
Expense	\$26,000.00
Jobbing	\$0.00
Retirement	\$0.00
Removal	\$13,000.00
Total (excl. Rets.)	\$260,000.00
Credits	\$0.00
Net	\$260,000.00

Revision Info: Other Updates

Revision: 2 of 2 [K] [<] [>] [>I]
[Find Revision](#) [Send for Approval]

Show 'Budget Only' Revisions

Spending Estimates:
 Grid Estimates
 Forecast
 Summarize from W/O
 Copy Estimate

Property Estimates:
 Unit Estimates
 Create As Built
 Delete Used Estimates

Edit:
 New Revision
 Delete Revision
 Update
 Update With Actuals
 Import Estimates

Other:
 Revision Comments
 Released Dollars
 Substitution
 S/ide

Version Compare [Close]

Record 1 of 1 [K] [<] [>] [>I]
 Audits

Change in DOA Request Form (Less than Million)

Version 9.0

Note: Fill data in the grey area and email form to **Mario Carlino** and the appropriate IP analyst.

Gas - Tracy Nguyen

Electric - Janice Flynn

*Date:	9/4/2015
*Operating Company:	The Narragansett Electric Co.
*PowerPlant Project Id:	C045657
*Project Name:	DOT-Repl Bridges No. 475 & 476 E.P.
*Project Engineer:	Richard M. Botelho
*Project Manager:	Thomas Capobianco

Latest Project Estimate

*Date of Latest Sanction:	12/20/2012
---------------------------	------------

Total	Capex	Opex	Removal
\$50,000	\$50,000	\$0	\$0

Revised Project Estimate

Total	Capex	Opex	Removal
\$260,000	\$221,000	\$26,000	\$13,000

Cash Flows

Previous FY	Capex	Opex	Removal
\$18,000	\$18,000	\$0	\$0

Current FY	Capex	Opex	Removal
\$121,000	\$101,500	\$13,000	\$6,500

FY+1	Capex	Opex	Removal
\$121,000	\$101,500	\$13,000	\$6,500

FY+2	Capex	Opex	Removal
\$0			

Customer Contribution	

Reason for Revision

<input checked="" type="checkbox"/>	Revised forecast either exceeds or is lower than the Approved Amount - Project Still In Process
	New Project Estimated Completion Date: 3/31/2017

<input type="checkbox"/>	Actual Spending either exceeds or is lower than the Approved Amount – Project is Complete
--------------------------	---

Reason for Increased Spending (Please expand the row height if box doesn't fit)

<input checked="" type="checkbox"/>	Change in Scope (Material, Labor or Other)
-------------------------------------	--

Change in DOA Request Form (Less than Million)

	<p>Original DOA for 50,000 was for preliminary engineering only. This is the final design estimate submitted to RI DOT for 100% reimbursement.</p>
<input type="checkbox"/>	<p>Resource Allocation (Schedule, Delay, OT, or Contractor)</p>
<input type="checkbox"/>	<p>Low/High Estimate</p>
<input type="checkbox"/>	<p>External Forces (Permitting Requirements, Weather, Contractor Issues, etc)</p>

In-service Dates

*Original In-service Date:
*Revised In-service Date:

C045680

MELR13_Replace windows

5360-Narragansett Electric and Gas Project Revision Detail Report

Fund Project Number: <u>C045680</u>	USSC #: <u>USSC-13-085</u>
Revision: <u>2</u>	Budget Version: <u>Default</u>
Project Title: <u>MELR13 Replace windows</u>	
Project Description: REMOVE AND REPLACE WINDOWS	

Project Status: <u>open</u>	
Responsible Person: <u>O'ROURKE, ED</u>	Initiator: <u>Hutton, Rebekah M</u>
Spending Rationale:	Funding Type: <u>P FAC Electric Capital RI</u>
Budget Class:	
Capital by Category:	
Program Code: <u>N/A (non Max)</u>	
Project Risk Score:	Project Complexity Score: <u>12</u>

Project Schedule / Expenditures

Revision Status: <u>Approved</u>					
Est Start Date: <u>12/15/2012</u>		Est Complete Date: <u>6/30/2016</u>			
Est In-Service Date: <u>6/30/2016</u>					
TTD Actuals: <u>\$2,017,620</u>		As Of: <u>10/2/2017</u>			
Cost Breakdown	<u>Capital</u>	<u>Expense</u>	<u>Removal</u>	<u>Total</u>	<u>Credits</u>
	<u>\$2,800,000</u>	<u>\$0</u>	<u>\$820,000</u>	<u>\$3,620,000</u>	<u>\$0</u>

Justification / Risk Identification:
 EXISTING WINNDOWS LEAK AND PROVIDE INADEQUATE INSULATING PERFORMANCE

Project Scope:
 REMOVE AND REPLACE WINDOWS

Project Alternatives Considered:

<Enter data here>

Additional Notes:

<Enter data here>

Related Projects:

Project Number:

Project Name:

Approvals

Line 1:	Date	<u>2/3/2014 09:53:50</u>	Approver	<u>carlim</u>	<u>USSC Approver</u>
Line 2:	Date		Approver		
Line 3:	Date		Approver		
Line 4:	Date		Approver		
Line 5:	Date		Approver		

*****Project Authorization is for Approved Revision Total Estimated Cost +10%*****

REDACTED - CEII Information has been Redacted

PowerPlan ----- PPGPRD Database

File Edit Subsystem Batch Admin Preferences Window Help

Projects Assets Tables CR MyPPlan Help Calc Print Win

Funding Project Estimates - Summary C045680 Current Total Authorized Amount: \$3,62...

Title

Project Number

Budget Version	Default (active)
Revision	13-085
Revision Status	Approved
Revision No.	<input type="text" value="2"/>
Est Start Date	12/15/2012
Est Complete Date	06/30/2016
Est In Srvc Date	06/30/2016
Capital	\$2,800,000.00
Expense	\$0.00
Jobbing	\$0.00
Retirement	\$0.00
Removal	\$820,000.00
Total (excl. Rets.)	\$3,620,000.00
Credits	\$0.00
Net	\$3,620,000.00

Revision Info

Revision of 2

[Find Revision](#)

Show 'Budget Only' Revisions

Spending Estimates:

Property Estimates:

Edit:

Other:

Record of 1



US Sanction Paper

Title:	Melrose St. Window Replacement Program	Sanction Paper #:	USSC-13-085
Project #:	C045690	Sanction Type:	Sanction
Operating Company:	Narragansett Electric Company.	Date of Request:	2/27/13
Author:	Patrick Burns		Rudy Wynter
Utility Service:	Property	Project Manager:	Tom Wall

1 Executive Summary

1.1 Sanctioning Summary:

This paper requests sanction of Melrose St Window Replacement Program, in the amount of \$ 3,620,000 with a tolerance of 10% for the purposes of engineering, and construction to replace the windows at the Melrose St. operations facility in Providence, RI over a four to five year period.

The sanction amount is \$ 3,620,000 broken down into:

- \$3,020,000 Capex
- \$ 600,000 Removals

1.2 Brief Description:

The Melrose St facility in Providence, RI was constructed in the 1920s. Many of the windows are wood framed, single pane construction and are failing. The wood framing is rotting and air and water penetrate the buildings around the windows. There was an isolated incident in 2012 where panes of glass fell out of the windows in the Heavy Stores area. The glass in that area has been secured. Window replacement will be staged over a number of years, with the oldest windows replaced first.

1.3 Summary of Projects:

Project Number	Project Title	Estimate Amount
C045690	Melrose St. Window Replacement	\$3,620,000
	Total	\$3,620,000



US Sanction Paper

1.4 Associated Projects:

Project Number	Project Title	
Total		

1.5 Prior Sanctioning History (including relevant approved Strategies):

Date	Governance Body	Sanctioned Amount	Paper Title	Sanction Type

1.6 Next Planned Sanction Review:

Date (Month/Year)	Purpose of Sanction Review
2/2018	Project Closure

1.7 Category:

Category	Reference to Mandate, Policy, or NPV Assumptions
<input checked="" type="radio"/> Mandatory <input type="radio"/> Policy- Driven <input type="radio"/> Justified NPV	The windows at this facility are failing and require replacement.



US Sanction Paper

1.8 Asset Management Risk Score

Asset Management Risk Score: n/a

Primary Risk Score Driver: (Policy Driven Projects Only)

- Reliability
 Environment
 Health & Safety
 Not Policy Driven

1.9 Complexity Level: (if applicable)

- High Complexity
 Medium Complexity
 Low Complexity
 N/A

Complexity Score: 12

1.10 Process Hazard Assessment

A Process Hazard Assessment (PHA) is required for this project:

- Yes
 No

1.11 Business Plan:

Business Plan Name & Period	Project included in approved Business Plan?	Over / Under Business Plan	Project Cost relative to approved Business Plan (\$)
Facilities Management Capital; Plan FY13-FY17	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Over <input checked="" type="radio"/> Under	\$0.0

1.12 If cost > approved Business Plan how will this be funded?

Capital costs are included in Facilities Management capital plan.



US Sanction Paper

1.13 Current Planning Horizon:

	Prior Yrs	Current Planning Horizon						Total
		Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6+	
		2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	
Capex	\$0.00	\$0.00	\$0.70	\$0.70	\$0.70	\$0.70		\$2.80
Opex		0						\$0.00
Removal		\$0.02	\$0.20	\$0.20	\$0.20	\$0.20		\$0.82
CIAC/ Reimbursement								\$0.00
Total	\$0.00	\$0.02	\$0.90	\$0.90	\$0.90	\$0.90	\$0.00	\$3.62

1.14 Resources:

Resource Sourcing			
Engineering & Design Resources to be provided	<input type="checkbox"/> Internal	<input checked="" type="checkbox"/> Contractor	
Construction/Implementation Resources to be provided	<input type="checkbox"/> Internal	<input checked="" type="checkbox"/> Contractor	
Resource Delivery			
Availability of internal resources to deliver project:	<input type="radio"/> Red	<input checked="" type="radio"/> Amber	<input type="radio"/> Green
Availability of external resources to deliver project:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
Operational Impact			
Outage impact on network system:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
Procurement impact on network system:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green

1.15 Key Issues (include mitigation of Red or Amber Resources):

1	If necessary a 3 rd party PM resource will be utilized to manage this project
2	
3	



US Sanction Paper

1.16 Key Milestones:

Milestone	Target Date: (Month/Year)
Bid Construction	2/2013
Sanction	2/2013
Begin Construction	5/2013

1.17 Climate Change:

Are financial incentives (e.g. carbon credits) available?	<input type="radio"/> Yes	<input checked="" type="radio"/> No
Contribution to National Grid's 2050 80% emissions reduction target:	<input type="radio"/> Neutral	<input checked="" type="radio"/> Positive
Impact on adaptability of network for future climate change:	<input checked="" type="radio"/> Neutral	<input type="radio"/> Positive
	<input type="radio"/> Negative	<input type="radio"/> Negative

1.18 List References:

1	
2	



US Sanction Paper

Decisions

The US Sanctioning Committee (USSC) at a meeting held on 2/27/2013:

(a) APPROVED this paper and the investment of \$3.62M and a tolerance of +/- 10 % for the total project costs.

(b) NOTED that Tom Wall is the Project Manager and has the approved financial delegation to undertake the activities stated in (a).

Signature.....*Lee Eckert*.....Date.....*4/8/13*.....

Lee S. Eckert
US Chief Financial Officer
Chairman, US Sanctioning Committee



US Sanction Paper

2 Sanction Paper Detail

Title:	Melrose St Window Replacement Program	Sanction Paper #:	USSC-13-085
Project #:	CO 45680	Sanction Type:	Sanction
Operating Company:	NECO	Date of Request:	2/27/13
Author:	Patrick Burns	Sponsor:	Rudy Wynter
Utility Service:	Property	Project Manager:	Tom Wall

2.1 Background

The Melrose St facility in Providence, RI was constructed in the 1920s. Many of the windows are wood framed, single pane construction and are failing. The wood framing is rotting and air and water penetrate the buildings around the windows. There was an isolated incident in 2012 where panes of glass fell out of the windows in the stock room area. The glass in that area has been secured. Window replacement will be staged over a number of years, with the oldest windows replaced first.

2.2 Drivers

Windows have failed and a few have fallen out, as a result all have been secured, however, some have been replaced with plywood. The windows are failing and allowing both air and water to penetrate the facility.

2.3 Project Description

Window replacement of over 550 windows will occur over a number of years. The exiting window frames and surrounding area will be tested fro environmental contaminants. Upon completion of any environmental remediation, the windows will be removed and replaced. Window replacement will be completed on building at a time.

2.3 Benefits Summary

Replacing the windows will increase the safety of the occupants and increase the energy efficiency of the complex.

2.4 Business Issues

The projected overall project costs are included in Facilities Management's FY14 – Fy18 capital budget. This program is supported by the RI jurisdiction.



US Sanction Paper

2.5 Alternatives

Alternative 1: Do Nothing. The windows will continue to deteriorate at an accelerated rate which could lead to both health and safety issues.

Alternative 2: Repair only the failing windows. This will eliminate any ongoing safety concerns, however, will continue to allow air and water infiltration into the complex.

Alternative 3: Defer this project until next fiscal year.

2.6 Safety, Environmental and Project Planning Issues

Safety

Personnel shall ensure they are following the latest procedures for the work they are undertaking. This will be accomplished by putting together a health and safety plan and by ensuring oversight with adequate supervision. Proper clothing and PPE shall be worn by all working on the project.

Environment

Construction will adhere to appropriate existing environmental policies and procedures. All windows will be tested for contaminants prior to their removal to allow for proper removal and disposition.

No public outreach will be necessary as construction will occur in a facility currently owned and operated by National Grid.

2.7 Execution Risk Appraisal

Number	Detailed Description of Risk / Opportunity	Probability	Impact		Score		Strategy	Pre-Trigger Mitigation Plan	Residual Risk	Post Trigger Mitigation Plan
			Cost	Schedule	Cost	Schedule				
1	Unforeseen Conditions During Construction	3	3	3	9	9	Mitigate	Work closely w/ A&E and contractor to identify potential areas of concern and develop solutions.	Change in scope effects costs and schedule	Continue to monitor contractor performance.
2	Environmental Contamination encountered during construction	3	4	3	12	9	Mitigate	Work closely with Environmental to test ahead of construction	Project is delayed	Meet weekly with Environmental to keep project on track



US Sanction Paper

2.8 Permitting

Permit Name	Probability Required (Certain/ Likely/ Unlikely)	Duration	Status (Complete/ In Progress Not Applied For)	Estimated Completion Date
Asbestos Abatement	Likely	30 days	Not applied For	3/15/2013

2.9 Investment Recovery

2.9.1 Investment Recovery and Regulatory Implications

Investment recovery will be through standard rate recovery mechanisms approved by appropriate regulatory agencies.

2.9.2 Customer Impact

This project results in a more engaged workforce working out of a much improved environment.

2.9.3 CIAC / Reimbursement

None

2.10 Financial Impact to National Grid

2.10.1 Cost Summary Table

Project Title	Project Number	Project Estimate	Spend	Prior Yrs	Current Planning Horizon						Total	
					Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6+		
					2012/13	2013/14	2014/15	2015/16	2016/17	2017/18		
Melrose St. Window Replacement	C045685	+/- 10%	Capex	0	\$0.00	\$0.70	\$0.70	\$0.70	\$0.70			\$2.80
			Opex		\$0.00							\$0.00
			Removal		\$0.02	\$0.20	\$0.20	\$0.20	\$0.20			\$0.82
			Total	\$0.00	\$0.02	\$0.90	\$0.90	\$0.90	\$0.90	\$0.00	\$3.62	



US Sanction Paper

It is expected that the plant will be capitalized when each phase of eth program is placed in service

2.10.2 Project Budget Summary Table

Project Costs Per Business Plan

Spend	Prior Yrs	Current Planning Horizon						Total
		Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6+	
		2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	
Capex		\$0.00	\$0.70	\$0.70	\$0.70	\$0.70		\$2.80
Opex		\$0.00						\$0.00
Removal		\$0.02	\$0.20	\$0.20	\$0.20	\$0.20		\$0.82
Total Cost in Bus. Plan	\$0.00	\$0.02	\$0.90	\$0.90	\$0.90	\$0.90	\$0.00	\$3.62

Variance

Spend	Prior Yrs	Current Planning Horizon						Total
		Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6+	
		2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	
Capex		\$0.00	\$0.00					\$0.00
Opex								\$0.00
Removal		\$0.00	\$0.00	0				\$0.00
Total Cost in Bus. Plan	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

2.10.3 Cost Assumptions

Costs are based upon competitive bids for the construction of the project.

2.11 Statements of Support

2.11.1 Supporters

Role	Name	Responsibilities
Jurisdictional President	Tim Horan	RI Jurisdiction



US Sanction Paper

2.11.2 Reviewers

Reads paper for content / language. Recommends edits if necessary

Reviewer List	Name
Finance	Paul Flaherty
Regulatory	Gideon Katsh
Jurisdictional Delegates	

3 Appendices

3.1 Sequence of Window Replacement

- Heavy Stores
- Light Stores
- Connector Building
- Office Building
- Line Shed
- Underground
- Boiler House
- Garage

C046352

Volt Var Dline RI Pilot Project

5360-Narragansett Electric and Gas Project Revision Detail Report

Fund Project Number: <u>C046352</u>	USSC #: <u>USSC-14-009 v5</u>
Revision: <u>8</u>	Budget Version: <u>Default</u>
Project Title: <u>Volt Var Dline RI Pilot Project</u>	
Project Description: <u>UoF RI Volt/Var Mgmt Pilot Project</u>	

Project Status: <u>open</u>	
Responsible Person: <u>SKRZYPCZAK, JOHN</u>	Initiator: <u>Holden, Eric H</u>
Spending Rationale: <u>System Capacity & Performance</u>	Funding Type: <u>P Electric Distribution Line RI</u>
Budget Class: <u>Load Relief</u>	
Capital by Category:	
Program Code:	
Project Risk Score: <u>36</u>	Project Complexity Score: <u>25</u>

<u>Project Schedule / Expenditures</u>					
Revision Status:	<u>Approved</u>				
Est Start Date:	<u>4/1/2013</u>	Est Complete Date:	<u>8/30/2017</u>		
Est In-Service Date:	<u>4/30/2017</u>				
TTD Actuals:	<u>\$5,249,679</u>	As Of:	<u>10/2/2017</u>		
Cost Breakdown	<u>Capital</u>	<u>Expense</u>	<u>Removal</u>	<u>Total</u>	<u>Credits</u>
	<u>\$4,387,000</u>	<u>\$475,000</u>	<u>\$98,000</u>	<u>\$4,960,000</u>	<u>\$0</u>

Justification / Risk Identification:
 UoF RI Volt/Var Mgmt Pilot Project

Project Scope:
 Through these projects, National Grid will pursue a Volt VAR Optimization (VVO) Demonstration Project in the state of Rhode Island. National Grid has selected Utilidata to supply centralized control functionality designed to optimize the operation of existing and new reactive resources as well as various voltage regulation devices on seven distribution feeders selected for the demonstration project.

Project Alternatives Considered:

<Enter data here>

Additional Notes:

<Enter data here>

Related Projects:

Project Number:

Project Name:

Approvals

Line 1:	Date	<u>7/18/2016 12:38:14</u>	Approver	<u>carlim</u>	<u>USSC Approver</u>
Line 2:	Date		Approver		
Line 3:	Date		Approver		
Line 4:	Date		Approver		
Line 5:	Date		Approver		

*****Project Authorization is for Approved Revision Total Estimated Cost +10%*****

REDACTED - CEII Information has been Redacted

PowerPlan ----- PPGPRD Database

File Edit Subsystem Batch Admin Preferences Window Help

Projects Assets Tables CR MyPPlan Help Calc Print Win

Funding Project Estimates - Summary C046352 Current Total Authorized Amount: \$4,96...

Title Volt Var Dline RI Pilot Project
Project Number C046352

Budget Version	Default (active)
Revision	v5
Revision Status	Approved
Revision No.	8
Est Start Date	04/01/2013
Est Complete Date	08/30/2017
Est In Srvc Date	04/30/2017
Capital	\$4,387,000.00
Expense	\$475,000.00
Jobbing	\$0.00
Retirement	\$0.00
Removal	\$98,000.00
Total (excl. Ret.)	\$4,960,000.00
Credits	\$0.00
Net	\$4,960,000.00

Revision Info Other Updates

Revision 8 of 8

[Find Revision](#)

Show 'Budget Only' Revisions

Spending Estimates:

Property Estimates:

Edit:

Other:

Record 1 of 1



Short Form Sanction Paper

Title:	Volt Var Optimization Demonstration Project	Sanction Paper #:	USSC-14-009 v5
Project #:	C046352, C052708, C053111	Sanction Type:	Sanction
Operating Company:	The Narragansett Electric Co.	Date of Request:	July 12, 2016
Author:	John Skrzypczak	Sponsor:	Carol A. Sedewitz Vice President Electric Asset Management
Utility Service:	Electricity T&D	Project Manager:	John Skrzypczak

1 Executive Summary

1.1 Sanctioning Summary

This paper requests sanction of projects C046352, C052708, and C053111 in the amount \$6.594M with a tolerance of +/- 10% for the purposes of full implementation.

The sanction amount is \$6.594M broken down into:

\$5.837M CapEx
 \$0.652M OpEx
 \$0.105M Removal

1.2 Project Summary

Through these projects, National Grid will pursue a Volt VAR Optimization (VVO) Demonstration Project in the state of Rhode Island. National Grid has selected Utilidata to supply centralized control functionality designed to optimize the operation of existing and new reactive resources as well as various voltage regulation devices on seven distribution feeders selected for the demonstration project.

At the time of this sanction, VVO is currently enabled on 2 feeders in the Putnam Pike area, and the third feeder will be online with the addition of 5 cellular radios. As this pilot sought not only to explore the potential of VVO, but also the performance of a private mesh network, the switch to a public cellular carrier has significant impacts on being able to finish the project for a reduced cost.



Short Form Sanction Paper

2 Project Detail

2.1 Project Description

Please note that the results of the Trilliant RF study may have an impact on the Distribution Line design and associated costs.

Infrastructure Development

Table 1 shows Putnam Pike distribution infrastructure development, which includes the installation of voltage regulators, capacitor banks, and step-down transformer removals/installations and associated area voltage conversion. The area voltage conversion calls for one 4kV voltage regulator to be removed and approximately 4200 circuit feet to be converted to 12.47kV.

The Putnam Pike substation regulator controllers will be replaced with Beckwith M-2001D units, which meet current standards and enables device supervisory control.

Putnam Pike	Line Regulators	Step-down Transformers	Capacitor Banks	Cap Controls (SEL 734B)	Convert (mi)	Load Balancing
Install	9		4			
Remove	1					
Replace	3	3		11	0.80	20

TABLE 1: PUTNAM PIKE ASSETS

Table 2 shows the recommended Tower Hill distribution infrastructure development which includes the installation of voltage line regulators and capacitor banks. There is no recommended work at the substation.

Tower Hill	Line Regulators	Step-down Transformers	Capacitor Banks	Cap Controls (SEL 734B)	Convert (mi)	Load Balancing
Install	9		3			
Remove						
Replace				16		23

TABLE 2: TOWER HILL ASSETS



Short Form Sanction Paper

Table 3 summarizes the total infrastructure development on the circuits out of Putnam Pike and Tower Hill substations. Figures 1-5 shows electrical one-lines of specific asset locations for the various feeders involved in the demonstration project.

Total	Line Regulators	Step-down Transformers	Capacitor Banks	Cap Controls (SEL 734B)	Convert (mi)	Load Balancing
Install	18		7			
Remove	1					
Replace	3	3		27	0.80	43

TABLE 3: TOTAL ASSETS

IS Scope

- Survey and design for establishing radio network between 40 field devices in Putnam pike (Line Voltage regulators, Line Voltage monitors and Capacitor bank controllers) with Trilliant Wireless station.
- Establish Multi-Protocol Label Switch (MPLS) network connectivity between Trilliant Wireless station and Northborough data center / Utilidata server location.
- Establish authentication mechanism for the radios using existing Smart grid Authentication servers.
- 1 router/1 Out of Band at each Nooseneck and Peck Hill towers to support the new circuit
- Establish MPLS network connectivity from Tower Hill and Putnam Pike substations to Northborough data center / Utilidata server location.
- Installation of Adaptivolt VVO software and testing connectivity between systems (hardware installation and commissioning being managed by Engineering team and configuration by Utilidata), setting up ESP network for Utilidata server components in data center.
- Establish network connectivity between the National Grid EMS Network and Utilidata Adaptivolt system.
- Implement Secure Shell File Transfer Protocol to facilitate the (daily or weekly) transfer data to Utilidata for Measurement & Verification analysis.
- Provide access to Engineering and Utilidata users for support and maintenance of field devices, Utilidata VVO System, and network devices through the IPSEC VPM .
- Track potential benefits from deployment and infrastructure development costs to enable future system planning.

The pilot sought to not only explore the VVO functionality, but also to explore the deployment of a private mesh area network. For the project, through an RFP, Trilliant was selected to provide this RF network for both areas. However, after significant issues with the deployment, the project team has elected to use cellular for the remainder of the project. Some of the causes for this shift are:



Short Form Sanction Paper

- The Trilliant Network Management Software is consuming far more information that appropriate, necessary, or predicted.
- The Network has become very 'tower centric' with relatively low 'mesh capability'
- The Trilliant devices appear to require additional pole extensions and taller poles than expected to achieve reasonable performance
- The Trilliant network has a limitation of 10 hops, which was not disclosed prior to start of deployment
- A significant number of radio's have required RMA

These issues have increased the project costs beyond what has been anticipated, and led to the need for 170% more poles to be modified for the project in the Putnam Pike area, as well as multiple visits per pole. Switching to cellular will keep the field installation simple, with no risk of expansion, and requires only minor firewall rules and additional hardware to complete.

2.2 Benefits

The benefits of distribution feeder reactive support and voltage regulation are well known and individual capacitor installations and voltage regulators can be justified to maintain service voltage within required limits and to release capacity on T&D assets. It is believed that a more refined control system will allow the Company to meet its service quality requirements while reducing system losses and reducing customer energy consumption. However, National Grid has not yet evaluated the potential for achieving these additional benefits to be derived from advanced VVO control systems and strategies utilizing centralized control algorithms.

This project is recommended at this time for the following reasons:

- To quantify the potential operational benefits from these systems as stated by the manufacturer in order to improve service to National Grid customers
- To understand potential synergies with other rapidly developing uses of advanced technology on power distribution systems
- To understand how application of these systems could be integrated with existing guidelines to meet current objectives for volt/VAR infrastructure
- To guide system planners on potential benefits from this type of deployment
- To understand system performance when distribution is out of normal configuration

Direct benefits the demonstration project seeks to quantify are as follows:

- Reduction in system losses
- Reduction in customer energy use
- Improvement in voltage performance
- Reduction in feeder demand
- Improved flexibility to meet NE ISO pf performance



Short Form Sanction Paper

- Improved planning & operations capability as a result of increased system performance monitoring

The criteria used for selecting the distribution feeders that are proposed in the demonstration project are as follows:

- 15kV feeder class
- Some level of existing automation Energy Management System (EMS) at substation
- Existing Line capacitors
- At least one set of line regulators on a feeder served by a target substation

Table 4 shows the characteristics of an average Rhode Island feeder with comparison to the feeders that were selected. The selected feeders tended to be longer than the average feeder due to the desire to evaluate a feeder that had distribution line regulators installed.

VVO Feeder Selection Analysis	# of Feeders	Customers	Total Miles	OH Miles	UG Miles	3Ph OH Miles	Cap Banks	kVAR	3PH Line Regs
RI 15 kV Averages	222	1,789	23.8	20.1	3.8	7.9	3.6	2,804.8	0.09
RI Target Sample Averages	51	2,031	38.0	32.1	5.9	11.3	4.3	3,066.7	0.37
Test Sample Averages	7	2,286	47.5	40.4	6.6	13.8	4.9	3,800.0	0.4
Test Sample Totals	7	16,000	332.1	282.5	46.3	96.9	34.0	26,600.0	3.00

TABLE 4: VVO SELECTION ANALYSIS

The selected feeders for this demonstration project are Putnam Pike 38F1, 38F3, 38F5 in the northern area. In the southern area Tower Hill 88F1, 88F3, 88F5, and the 88F7 were selected. Although the 88F7 feeder is not yet in service, its circuit characteristics were assembled from the portions of existing circuits (including the Lafayette substation feeder 30F2) that will be used to establish its normal configuration.

Required infrastructure development was determined to address existing concerns related to thermal, voltage, and reactive performance before advanced VVO could be executed.



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2.3 Business & Customer Issues

2.4 Alternatives

Alternative 1: Do Nothing

This solution was rejected after a comprehensive project study report was completed to evaluate the benefits of current National Grid volt VAR management methods versus this proposed advanced volt VAR management solution with two-way communications and a centralized algorithm controlling voltage regulators and capacitor banks. The results of this report were presented to internal stakeholders as well as the Rhode Island Public Utilities Commission staff. Note, the internal study recommended pursuing this project's advanced volt var management solution in lieu of remaining with the currently used method.

2.5 Investment Recovery

Investment Recovery will be through standard rate recovery mechanisms.

2.5.1 Customer Impact

This project results in an indicative first full year revenue requirement when the asset is placed in service equal to approximately \$1.015M. This is indicative only. The actual revenue requirement will differ, depending upon the timing of the next rate case and/or the timing of the next filing in which the project is included in rate base.

3 Related Projects, Scoring, Budgets

3.1 Summary of Projects

Project Number	Project Type (Elec only)	Project Title	Estimate Amount (\$M)
C046352	D-Line	VVO Pilot Distribution	4.960
C052708	D-Sub	VVO Pilot Substation	0.228
C053111	IS	VVO Pilot IS	1.406
Total			6.594

3.2 Associated Projects

N/A



Short Form Sanction Paper

3.3 Prior Sanctioning History

Describe previous sanctions for the projects included in the scope of this paper (Newest to Oldest).

Date	Governance Body	Sanctioned Amount	Potential Project Investment	Paper Title	Sanction Type	Tolerance
01/19/2016	USSC	\$5.435M	\$6.235M	Volt Var Optimization Demonstration Project	Partial	+25%
06/23/2015	USSC	\$4.239M	\$4.913M	Volt Var Optimization Demonstration Project	Partial	+25%
11/04/2014	USSC	\$3.000M	\$4.795M	Volt Var Optimization Demonstration Project	Partial	+25%
01/14/2014	USSC	\$1.200M	\$4.232M	Volt Var Optimization Demonstration Project	Partial	+25%
12/03/2013	Powerplant	\$0.500M	N/A	Volt Var Optimization Demonstration Project	Rob Sheridan, DOA	+50% -25%



Short Form Sanction Paper

3.4 Category

Category	Reference to Mandate, Policy, NPV, or Other
<input type="radio"/> Mandatory	
<input checked="" type="radio"/> Policy- Driven	Advanced Volt Var Management
<input type="radio"/> Justified NPV	
<input type="radio"/> Other	

3.5 Asset Management Risk Score

Asset Management Risk Score: 36

Primary Risk Score Driver: (Policy Driven Projects Only)

- Reliability Environment Health & Safety Not Policy Driven

3.6 Complexity Level

- High Complexity Medium Complexity Low Complexity N/A

Complexity Score: 25

3.7 Next Planned Sanction Review

Date (Month/Year)	Purpose of Sanction Review
8/2017	Closeout Sanction



Short Form Sanction Paper

4 Financial

4.1 Business Plan

Business Plan Name & Period	Project included in approved Business Plan?	Over / Under Business Plan	Project Cost relative to approved Business Plan (\$)
FY17-21 NE Distribution Capital Plan	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input checked="" type="radio"/> Over <input type="radio"/> Under <input type="radio"/> NA	\$0.584M

4.1.1 If cost > approved Business Plan how will this be funded?

Re-allocation of funds within the portfolio has been managed by Resource Planning to meet jurisdictional budgetary, statutory and regulatory requirements.

4.2 CIAC / Reimbursement

N/A

4.3 Cost Summary Table

Project Number	Project Title	Project Estimate Level (%)	Spend	Prior Yrs	Current Planning Horizon (\$M)						Total	
					Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +		
C046352	VVO Pilot Distribution	Est Lvl (e.g. +/- 10%)	CapEx	3.049	1.288	0.050	-	-	-	-	-	4.387
			OpEx	0.447	0.028	-	-	-	-	-	-	0.475
			Removal	0.070	0.028	-	-	-	-	-	-	0.098
			Total	3.566	1.344	0.050	-	-	-	-	-	4.960
C052708	VVO Pilot Substation	Est Lvl (e.g. +/- 10%)	CapEx	0.223	0.005	-	-	-	-	-	-	0.228
			OpEx	-	-	-	-	-	-	-	-	-
			Removal	-	-	-	-	-	-	-	-	-
			Total	0.223	0.005	-	-	-	-	-	-	0.228
C053111	VVO Pilot IS	Est Lvl (e.g. +/- 10%)	CapEx	1.012	0.210	-	-	-	-	-	-	1.222
			OpEx	0.177	-	-	-	-	-	-	-	0.177
			Removal	0.007	-	-	-	-	-	-	-	0.007
			Total	1.196	0.210	-	-	-	-	-	-	1.406
Total Project Sanction			CapEx	4.284	1.503	0.050	-	-	-	-	5.837	
			OpEx	0.624	0.028	-	-	-	-	-	0.652	
			Removal	0.077	0.028	-	-	-	-	-	0.105	
			Total	4.985	1.559	0.050	-	-	-	-	6.594	

*Note there is a recurring annual IS OpEx cost of \$0.289M starting in FY15 for maintaining Security, Network WAN components, Trilliant Wireless units, servers, hardware, and software licensing.



Short Form Sanction Paper

4.4 Project Budget Summary Table

Project Costs per Business Plan

\$M	Prior Yrs (Actual)	Current Planning Horizon (\$M)						Total
		Yr. 1 2016/17	Yr. 2 2017/18	Yr. 3 2018/19	Yr. 4 2019/20	Yr. 5 2020/21	Yr. 6 + 2021/22	
CapEx	4.284	0.852	0.000	0.000	0.000	0.000	0.000	5.136
OpEx	0.624	0.075	0.000	0.000	0.000	0.000	0.000	0.699
Removal	0.077	0.098	0.000	0.000	0.000	0.000	0.000	0.175
Total Cost in Bus. Plan	4.985	1.025	0.000	0.000	0.000	0.000	0.000	6.010

Variance (Business Plan-Project Estimate)

\$M	Prior Yrs (Actual)	Current Planning Horizon (\$M)						Total
		Yr. 1 2016/17	Yr. 2 2017/18	Yr. 3 2018/19	Yr. 4 2019/20	Yr. 5 2020/21	Yr. 6 + 2021/22	
CapEx	0.000	(0.651)	(0.050)	0.000	0.000	0.000	0.000	(0.701)
OpEx	0.000	0.047	0.000	0.000	0.000	0.000	0.000	0.047
Removal	0.000	0.070	0.000	0.000	0.000	0.000	0.000	0.070
Total Cost in Bus. Plan	0.000	(0.534)	(0.050)	0.000	0.000	0.000	0.000	(0.584)

5 Key Milestones

Milestone	Target Date: (Month/Year)
Partial Sanction	01/2014
Construction Start	07/2014
Partial Sanction	06/2015
IS Construction and implementation Complete - CC	09/2015
Partial Sanction	01/2016
Final Engineering Complete	05/2016
Project Sanction	07/2016
Construction Complete	04/2017
Project Closure	08/2017



Short Form Sanction Paper

6 Statements of Support

6.1.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Role	Individual	Responsibilities
Investment Planner	DiConza, Glen	Endorses relative to 5-year business plan or emergent work
Resource Planning	Wyman, Anne	Endorses Resources, cost estimate, schedule, and Portfolio Alignment
Asset Management / Planning	Labarre, Alan T.	Endorses scope, estimate, and schedule with the company's goals, strategies, and objectives
Project Management	Schneller, Andrew	Endorses Resources, cost estimate, schedule
Electric Project Estimation	Simonds, Jammie	Endorses Costs Estimate

6.1.2 Reviewers

The reviewers have provided feedback on the content/language of the paper.

Reviewer List	Individual
Finance (Dist)	Easterly, Patricia
Regulatory	Zschokke, Peter
Jurisdictional Delegates	Patterson, Jim
Control Center	Gallagher, Michael
Procurement	Curran, Art



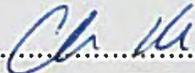
Short Form Sanction Paper

7 Decisions

I:

- (a) APPROVE this paper and the investment of \$6.594M and a tolerance of +/- 10%

- (b) NOTE that John Skrzypczak is the Project Manager and has the approved financial delegation.

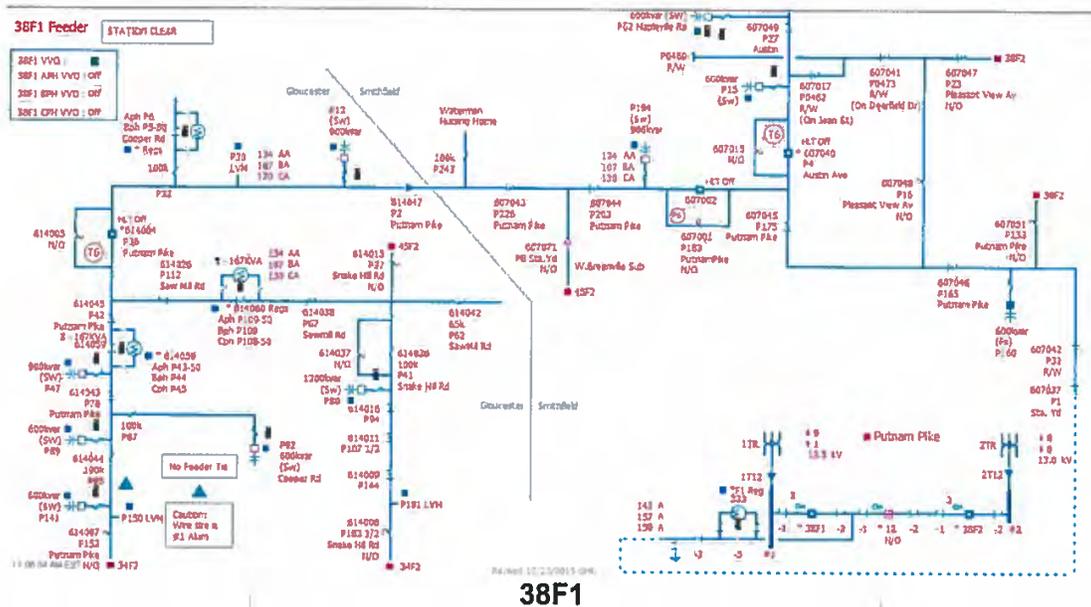
Signature..........Date..........
Executive Sponsor – Chris Kelly, Acting Senior Vice President, Electric Process and Engineering



Short Form Sanction Paper

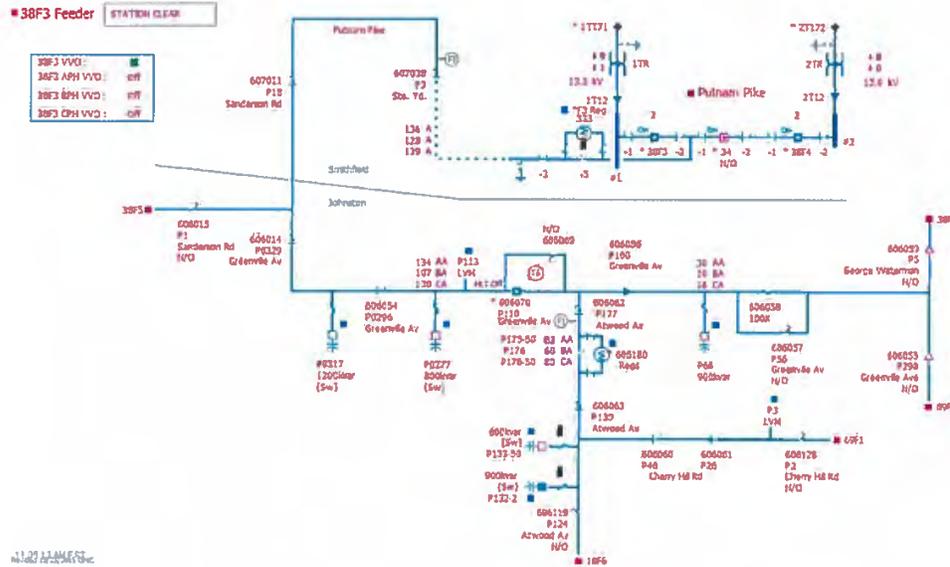
8 Other Appendices

8.1 Figures





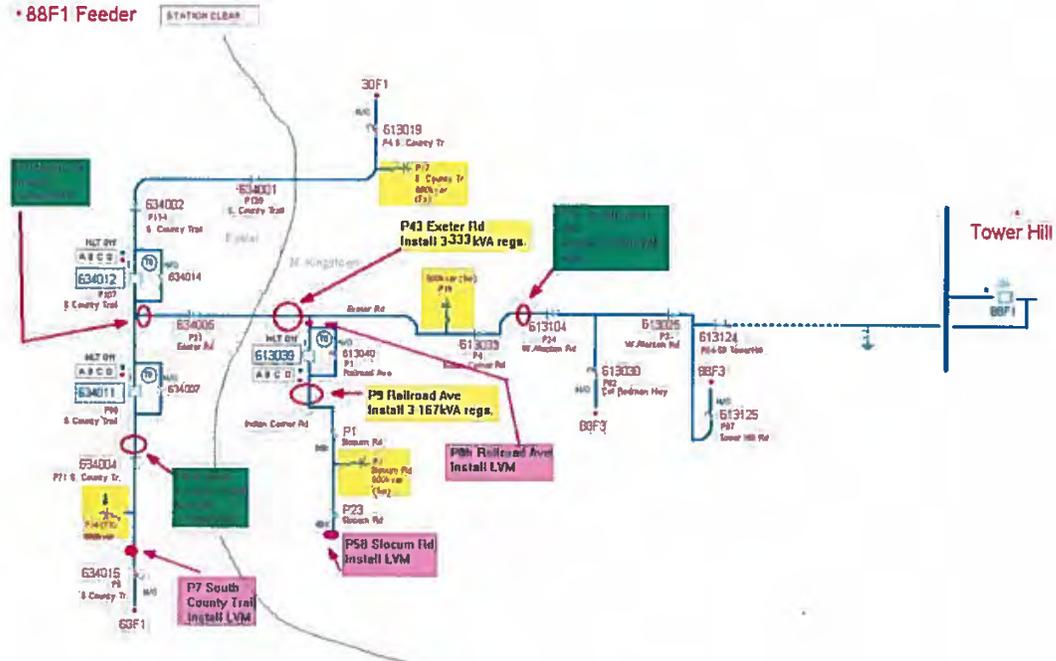
Short Form Sanction Paper



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Short Form Sanction Paper

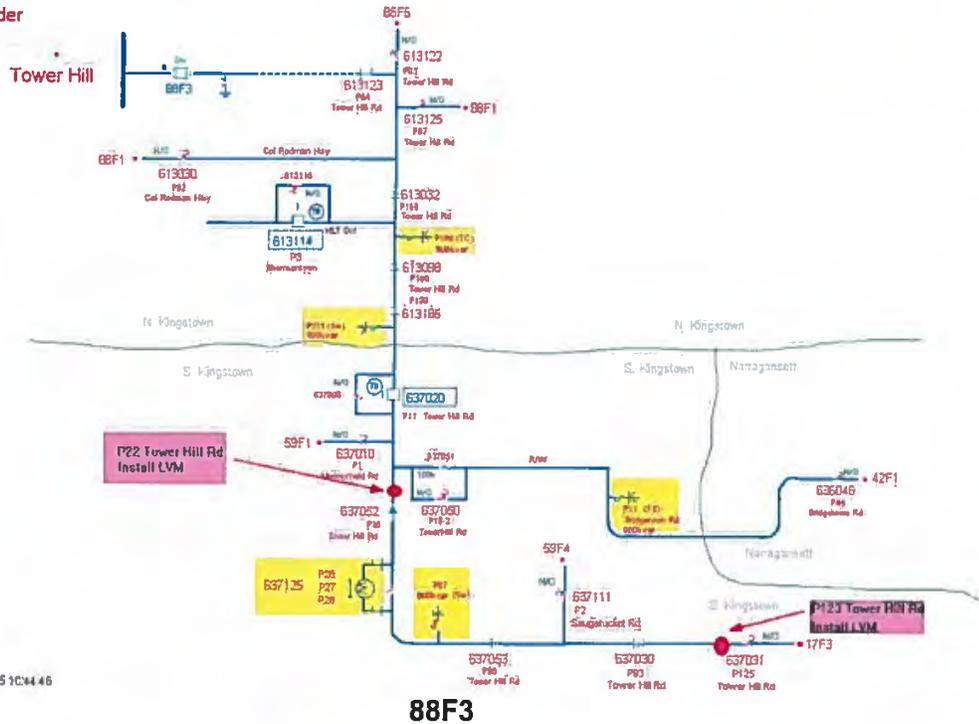


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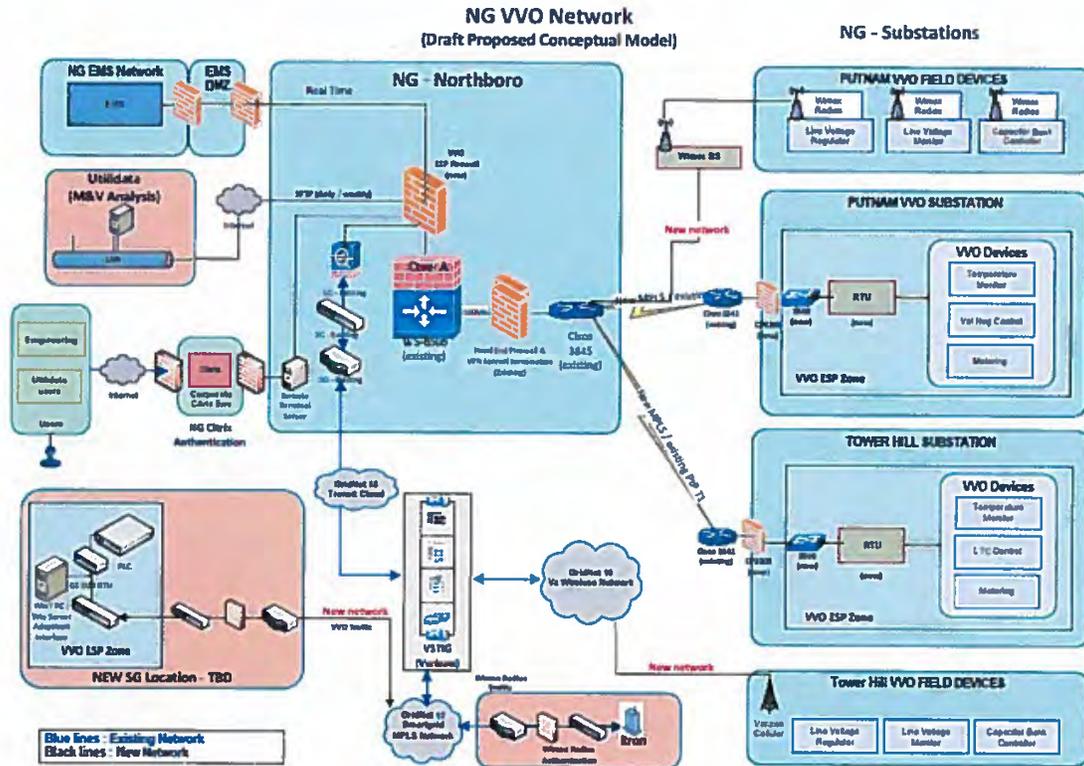
Short Form Sanction Paper

• 88F3 Feeder





Short Form Sanction Paper



C046386

BITS Wakefield Sub Upgrades (D-Sub)

5360-Narragansett Electric and Gas Project Revision Detail Report

Fund Project Number: <u>C046386</u>	USSC #: <u>USSC-13-007 v3</u>
Revision: <u>3</u>	Budget Version: <u>Default</u>
Project Title: <u>BITS Wakefield Sub Upgrades (D-Sub)</u>	
Project Description: Wakefield substation bay and protection upgrades due to BITS interconnection.	

Project Status: <u>in service</u>	
Responsible Person: <u>MAXIMOVICH, GEOR</u>	Initiator: <u>Holden, Eric H</u>
Spending Rationale: <u>Customer Request/Public Requirement</u>	Funding Type: <u>P Electric Distribution Sub RI</u>
Budget Class: <u>Distributed Generation</u>	
Capital by Category:	
Program Code:	
Project Risk Score: <u>49</u>	Project Complexity Score: <u>31</u>

Project Schedule / Expenditures

Revision Status: <u>Approved</u>	
Est Start Date: <u>9/21/2012</u>	Est Complete Date: <u>7/31/2017</u>
Est In-Service Date: <u>3/31/2017</u>	
TTD Actuals: <u>\$2,818,484</u>	As Of: <u>10/2/2017</u>
Cost Breakdown	
<u>Capital</u>	<u>Expense</u>
<u>Removal</u>	<u>Total</u>
<u>Credits</u>	
<u>\$2,009,000</u>	<u>\$22,000</u>
<u>\$11,000</u>	<u>\$2,042,000</u>
<u>\$0</u>	

Justification / Risk Identification:

This project is required to interconnect the Block Island Wind Farm to the Narragansett Electric 34.5kV distribution system, and will also facilitate interconnection of the Block Island Power Company (BIPCO) as a new load.

National Grid is contractually committed to interconnect Deepwater Wind's small-scale offshore wind demonstration project off the Block Island coast to the company's 34.5kV system in the mainland. While also advancing the State's policy intention to interconnect Block Island to the mainland, the BIPCO project requires additional components of definition that

Project Scope:

This project is for protection and substation bay upgrades at Wakefield substation. The scope of this work needs to be further developed.

Project Alternatives Considered:

Not Applicable

Additional Notes:

<Enter data here>

Related Projects:

Project Number:

Project Name:

Approvals

Line 1:	Date	<u>6/2/2016 08:33:06</u>	Approver	<u>carlim</u>	<u>USSC Approver</u>
Line 2:	Date		Approver		
Line 3:	Date		Approver		
Line 4:	Date		Approver		
Line 5:	Date		Approver		

*****Project Authorization is for Approved Revision Total Estimated Cost +10%*****

REDACTED - CEII Information has been Redacted

PowerPlan ----- PPGPRD Database

File Edit Subsystem Batch Admin Preferences Window Help

Projects Assets Tables CR MyPPlan Help Calc Print Win

Funding Project Estimates - Summary C046386 Current Total Authorized Amount: \$2,04...

Title:
Project Number:

Budget Version	Default (active)
Revision	v3
Revision Status	Approved
Revision No.	<input type="text" value="3"/>
Est Start Date	09/21/2012
Est Complete Date	07/31/2017
Est In Srvc Date	03/31/2017
Capital	\$2,009,000.00
Expense	\$22,000.00
Jobbing	\$0.00
Retirement	\$0.00
Removal	\$11,000.00
Total (excl. Rets.)	\$2,042,000.00
Credits	\$0.00
Net	\$2,042,000.00

Revision Info:

Revision: of 3

[Find Revision](#)

Show 'Budget Only' Revisions

Spending Estimates:

Property Estimates:

Edit:

Other:

Record of 1

This document has been reviewed for Critical Energy Infrastructure Information (CEII). 6/1/2016

D+T



US Sanction Paper

Title:	Block Island Transmission System (BITS)	Sanction Paper #:	USSC-13-007v3
Project #:	C044795, C044797, C044798, C046386, C059842	Sanction Type:	Sanction
Operating Company:	The Narragansett Electric Co.	Date of Request:	05/23/16
Author:	George Maximovich	Sponsor:	Carol Sedewitz, Acting VP, Electric Asset Management
Utility Service:	Electricity T&D	Project Manager:	George Maximovich

1 Executive Summary

1.1 Sanctioning Summary

This paper requests sanction of substation projects C044795, C044797, C046386, C059842 and of transmission line project C044798 in the amount \$133.877M with a tolerance of +/- 10% for the purposes of construction and full implementation.

This sanction amount is \$133.877M broken down into:
 \$133.760M Capex
 \$0.064M Opex
 \$0.053M Removal

1.2 Project Summary

This project is required to interconnect the Block Island Wind Farm to the Narragansett Electric 34.5kV system, and to also interconnect the Block Island Power Company (BIPCO) as a new wholesale customer. The work includes two new 34.5kV substations, one on Block Island and one on the mainland; approximately 20 miles of 34.5kV submarine cable; approximately 4 miles of underground infrastructure in the town of Narragansett and Wakefield to interconnect the offshore wind farm with the existing 34.5kV Wakefield Substation; approximately 1 miles of combined overhead and underground infrastructure on Block Island; and reinforcements to the existing 34.5kV system to accommodate the proposed interconnection.

The Block Island Transmission System (BITS) project is a key component of the proposed 30MW Deepwater Wind offshore wind demonstration project, a project that will advance numerous important public policy goals of the State of Rhode Island. National Grid has publicly supported the demonstration project and has committed to move forward with the BITS project to further the State's public policy goals.



US Sanction Paper

1.3 Summary of Projects

Project Number	Project Type (Elec only)	Project Title	Estimate Amount (\$M)
C044795	T-Sub	BITS Block Island Substation	11.698
C044797	T-Sub	BITS Mainland Substation	8.060
C044798	T-Line	BITS 34.5kV Line	111.837
C059842	T-Sub	BITS West Kingston Protection Upgrades	0.240
C046386	D-Sub	BITS Wakefield Sub Upgrade	2.042
Total			133.877

1.4 Associated Projects

Project Number	Project Title	Estimate Amount (\$M)
Total		0.000

1.5 Prior Sanctioning History

Date	Governance Body	Sanctioned Amount	Potential Project Investment	Paper Title	Sanction Type	Tolerance
December 10, 2014	USSC	\$85.500M	\$107.200M	USSC-13-007v2 Block Island Transmission System (BITS)	Partial Sanction	+/-25%
February 13, 2013	USSC	\$8.000M	\$75.000M	USSC-13-007 Block Island Transmission System (BITS)	Partial Sanction	-25% to +50%
May 11, 2011	DCIG	\$0.590M	\$48.578M	DCIG0411W381 Block Island Transmission System (BITS)	Partial Sanction	N/A



US Sanction Paper

1.6 Next Planned Sanction Review

Date (Month/Year)	Purpose of Sanction Review
June 2017	Project Closure Report

1.7 Category

Category	Reference to Mandate, Policy, NPV, or Other
<input type="radio"/> Mandatory	Rhode Island General Assembly enacted a law, R.I.G.L. Section 39-26.1-7, designed to facilitate the construction of a small-scale offshore wind demonstration project off the coast of Block Island, including an undersea transmission cable that interconnects Block Island to the mainland in order to further certain public policy goals
<input checked="" type="radio"/> Policy- Driven	
<input type="radio"/> Justified NPV	
<input type="radio"/> Other	

1.8 Asset Management Risk Score

Asset Management Risk Score: 49

Primary Risk Score Driver: (Policy Driven Projects Only)

- Reliability
 Environment
 Health & Safety
 Not Policy Driven

1.9 Complexity Level

- High Complexity
 Medium Complexity
 Low Complexity
 N/A

Complexity Score: 31

1.10 Process Hazard Assessment

A Process Hazard Assessment (PHA) is required for this project:

- Yes
 No



US Sanction Paper

1.11 Business Plan

Business Plan Name & Period	Project included in approved Business Plan?	Over / Under Business Plan	Project Cost relative to approved Business Plan (M\$)
NE Transmission FY17-21 Capital Plan	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input checked="" type="radio"/> Over <input type="radio"/> Under <input type="radio"/> NA	18.539
NE Distribution FY17-21 Capital Plan	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input checked="" type="radio"/> Over <input type="radio"/> Under <input type="radio"/> NA	1.196

1.12 If cost > approved Business Plan how will this be funded?

Re-allocation of funds within the portfolio will be managed by the Business Support Manager to meet jurisdictional budgetary, statutory and regulatory requirements

1.13 Transmission Current Planning Horizon

\$M	Prior Yrs	Current Planning Horizon						Total
		Yr. 1 2016/17	Yr. 2 2017/18	Yr. 3 2018/19	Yr. 4 2019/20	Yr. 5 2020/21	Yr. 6 + 2021/22	
CapEx	57.726	74.006	0.019	0.000	0.000	0.000	0.000	131.751
OpEx	0.042	0.000	0.000	0.000	0.000	0.000	0.000	0.042
Removal	0.042	0.000	0.000	0.000	0.000	0.000	0.000	0.042
CIAC/Reimbursement	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	57.810	74.006	0.019	0.000	0.000	0.000	0.000	131.835



US Sanction Paper

1.14 Distribution Current Planning Horizon:

\$M	Prior Yrs	Current Planning Horizon						Total
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
		2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	
CapEx	0.297	1.711	0.001	0.000	0.000	0.000	0.000	2.009
OpEx	0.000	0.022	0.000	0.000	0.000	0.000	0.000	0.022
Removal	0.009	0.002	0.000	0.000	0.000	0.000	0.000	0.011
CIAC/Reimbursement	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.306	1.735	0.001	0.000	0.000	0.000	0.000	2.042

1.15 Key Milestones

Milestone	Target Date: (Month/Year)
Preliminary Engineering Complete	October 2014
Planning Sanction	December 2014
Engineering Design Complete - EDC - Line	December 2015
Construction Start - Line	January 2016
Construction Start – Substation Site Preparation	January 2016
Engineering Design Complete – EDC - Substation	June 2016
Project Sanction	May 2016
Construction Start – BIPCO Connection	October 2016
Construction Finish – Block Island Wind Farm Connection	October 2016
Ready for Load – RFL - Block Island Wind Farm Connection	November 2016
Construction Finish – BIPCO Connection	February 2017
Ready for Load – RFL - BIPCO Connection	March 2017
Project Closure Report	July 2017



US Sanction Paper

1.16 Resources, Operations and Procurement

Resource Sourcing			
Engineering & Design Resources to be provided	<input checked="" type="checkbox"/> Internal	<input checked="" type="checkbox"/> Contractor	
Construction/Implementation Resources to be provided	<input checked="" type="checkbox"/> Internal	<input checked="" type="checkbox"/> Contractor	
Resource Delivery			
Availability of internal resources to deliver project:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
Availability of external resources to deliver project:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
Operational Impact			
Outage impact on network system:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
Procurement Impact			
Procurement impact on network system:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green

1.17 Key Issues (include mitigation of Red or Amber Resources)

1	The BITS project will install approximately 20 miles of submarine cable and associated facilities between Narragansett Electric and Block Island.
2	Permitting, environmental, and acquisition of property rights risks were led by the developer, Deepwater Wind Block Island, LLC, or its affiliate.
3	National Grid purchased the work Deepwater completed by January 2015 on the project. The conceptual engineering, property rights, and permits were used as the starting point for the construction of the project.

1.18 Climate Change

Contribution to National Grid's 2050 80% emissions reduction target:	<input checked="" type="radio"/> Neutral	<input type="radio"/> Positive	<input type="radio"/> Negative
Impact on adaptability of network for future climate change:	<input checked="" type="radio"/> Neutral	<input type="radio"/> Positive	<input type="radio"/> Negative



US Sanction Paper

1.19 List References

1	Subtransmission Impact Study, May 2016
2	System Impact Study, Queue Position #405, April 2014
3	Large Generator Interconnection Request for Block Island, October 2012
4	System Impact Study, Queue Position #308, July 2011



US Sanction Paper

2 Decisions

The US Sanctioning Committee (USSC) at a meeting held on May 23, 2016:

- (a) APPROVED this paper and the investment of \$133.877M and a tolerance of +/- 10.
- (b) NOTED that George Maximovich has the approved financial delegation.

Signature  Date 
Margaret Smyth
US Chief Financial Officer
Chair, Senior Executive Sanctioning Committee



US Sanction Paper

3 Sanction Paper Detail

Title:	Block Island Transmission System (BITS)	Sanction Paper #:	USSC-13-007v3
Project #:	C044795, C044797, C044798, C046386, C059842	Sanction Type:	Sanction
Operating Company:	The Narragansett Electric Co.	Date of Request:	05/23/16
Author:	George Maximovich	Sponsor:	Carol Sedewitz, Acting VP, Electric Asset Management
Utility Service:	Electricity T&D	Project Manager:	George Maximovich

3.1 Background

In 2010, the Rhode Island General Assembly enacted a law, R.I.G.L. Section 39-26.1-7, designed to facilitate the construction of a small-scale offshore wind demonstration project off the coast of Block Island, including an undersea transmission cable that interconnects Block Island to the mainland in order to further certain public policy goals.

The statute authorized National Grid to enter into a power purchase agreement (PPA) with the state's preferred developer of offshore wind for the purchase of energy, capacity, and any other environmental and market attributes. National Grid and Deepwater Wind Block Island LLC entered into the PPA as of June 30, 2010 to purchase the output of power generated from the wind farm. The Rhode Island Public Utilities Commission (Commission) approved the PPA on August 16, 2010. The BITS project will facilitate delivery of the demonstration project's output into the Narragansett Electric service territory.

The statute also required that a transmission cable between Block Island and the mainland must be constructed. National Grid reserved the option to own or operate or otherwise participate in such transmission cable project. The PPA contemplated that the parties would negotiate a cable purchase agreement for Deepwater's construction of the BITS project and National Grid's subsequent purchase thereof.

Initially, National Grid moved forward with the BITS project on the premise that Deepwater Wind would construct the BITS project and National Grid would purchase it from Deepwater. Deepwater proceeded with initial conceptual design and permitting at their risk.



US Sanction Paper

National Grid and Deepwater Wind identified numerous principled discrepancies when negotiating an agreement to purchase the completed BITS project and the negotiations stalled. In an effort to move the project forward both parties agreed to change the project development strategy and investigate National Grid moving forward to construct the BITS project. National Grid completed negotiations with Deepwater Wind to purchase the conceptual engineering, permits, real estate rights and other work (collectively, the “Assets”). The conceptual engineering, property rights, and permits will be used as the starting point for the construction of the project. The transfer of the Assets has been agreed in the Transmission Facilities Purchase Agreement for a cost of \$9.48M. The Transmission Facilities Purchase Agreement was approved by the Rhode Island Division of Public Utilities and Carriers on April 2, 2014 and officially closed with Deepwater Wind on January 31, 2015.

3.2 Drivers

National Grid is contractually committed to proceed with negotiations with Deepwater Wind regarding the BITS project to facilitate the construction of Deepwater Wind's small-scale offshore wind demonstration project off the Block Island coast that includes an undersea transmission cable that interconnects Block Island to the mainland. While also advancing the State's policy intention to interconnect Block Island to the mainland, the BITS project serves a dual purpose of delivering the wind farm's power to the mainland and providing transmission service to Block Island Power Company (BIPCO).

3.3 Project Description

This project is required to interconnect the Block Island Wind Farm to the Narragansett 34.5kV system, and will also interconnect the Block Island Power Company (BIPCO) as a new load (see Appendix A for a geographical map and preliminary electrical one-line of the proposed system). This work includes:

- Two new 34.5kV substations. One on Block Island and one on the Mainland.
- Approximately 20 miles of 34.5kV submarine cable. The transition from the ocean onto the land will occur at Scarborough Beach in Narragansett and in Crescent Beach in Block Island. The cable will be installed beneath the beaches by horizontal directional drills (HDDs).
- Approximately 4 miles of underground infrastructure in Narragansett to interconnect wind farm with the existing 34.5kV system.
- Approximately 1 mile of combined overhead and underground infrastructure on Block Island.



US Sanction Paper

- A fiber optic cable running from the mainland to Block Island required for the protection system.

In addition to infrastructure required for the interconnection, National Grid has identified infrastructure upgrades to the existing Narragansett Electric 34.5kV system required as a result of the interconnection. These upgrades include:

- Installing two (2) 1.5 MVAR shunt reactors at Block Island and two (2) 3.5 MVAR shunt reactors at the new substation on the mainland.
- Upgrading a substation bay at Wakefield substation for interconnection purposes. It includes new relays to support the interconnection.
- Modify at West Kingston substation the existing power directional relaying to allow for bi-directional power flow and also to detect faults on the transmission system and isolate the wind farm.

The installation of shunt reactors at Block Island will compensate for the reactive charging current produced by the wind farm collector system and undersea cable to Block Island. The installation of shunt reactors on the mainland substation will compensate for the reactive charging current produced by the approximately 20 mile undersea cable from Block Island to the mainland. Separate stages of shunt reactors will provide the flexibility to maintain acceptable voltage on Block Island and the mainland.

3.4 *Benefits Summary*

The project furthers the public policy goals articulated in the statute, which National Grid supports. Those public policy goals are: to position the State of Rhode Island to take advantage of the economic development benefits of the emerging offshore wind industry; promote the development of renewable energy sources that increase the nation's energy independence from foreign sources of fossil fuels; reduce the adverse environmental and health impacts of traditional fossil fuel energy sources; and provide the Town of New Shoreham with an electrical connection to the mainland.¹ The statute also includes provisions addressing recovery of project costs as described in Section 3.10.1.

3.5 *Business and Customer Issues*

The statute includes provisions that address recovery of project costs as described in Section 3.10.1.

¹ See R.I.G.L. § 39-26.1-7(a).



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The project cost is over the existing FY17 –FY21 Business Plan as a result of the following variance:

- Change order on the EPC contract for the submarine cable work in the amount of \$16.626M. Contractor submitted request of compensation for the additional work required to construct the horizontal directional drill (HDD) at Scarborough Beach based on encountered surface rock conditions and additional burial depth required to mitigate inadvertent return of drilling fluid. Currently under resolution process.
- Compensation to the Black Point Fish Trap owner in the amount of \$1.400M. The commercial operation is not feasible on this area to maintain the integrity and safety of the submarine cable.
- The project estimate cost on engineering works, legal, permitting and construction supervision activities resulted in increases of \$2.600M. The planning estimate underestimated the level of effort on these areas for the continuation of the project and the effect of the incremental cost related to the activities at Block Island.
- Archaeological discoveries at Block Island will impose changes on construction methodology for underground infrastructure in order proceed with data recovery of archeological artifacts and will be necessary to install a temporary overhead line to mitigate the schedule delays expected on the completion of the underground infrastructure. It is estimated an increase of \$1.800M. Currently under resolution process.
- The market value of substation equipment is \$1.960M over the planning grade estimate for these items.
- Concentration of contaminated soil in excess of the applicable RIDEM limits identified at Wakefield substation will impose remediation and additional construction activities. It is estimated an increase of \$0.200M. Currently under resolution process.

3.6 Alternatives

Per the statute, “The electric distribution company, at its option, may elect to own, operate, or otherwise participate in such transmission cable project. The electric distribution company, however, has the option to decline to own, operate, or otherwise participate in the transmission cable project.”²

With respect to the transmission cable project (BITS), the option considered was:

Option 1: Deepwater Wind constructs the project and National Grid purchases the project from Deepwater Wind. This option is not recommended because the developer’s proposal considered a Cost Plus/Cost-Reimbursable arrangement to construct the project that would be difficult to justify to our regulators, would transfer all

² See R.I.G.L. §39-26.1-7(c).



US Sanction Paper

cost risk to National Grid and our customers, and would result in a potentially higher overall project cost.

3.7 Safety, Environmental and Project Planning Issues

As discussed with the developer, the developer has the responsibility for maintaining a suitable safety program, environmental compliance and securing all permits associated with the BITS project.

Based on the completed negotiation process, National Grid purchased and transferred from Deepwater Wind their initial conceptual design and the permitting associated with the BITS project.

The BITS project will facilitate the purchase of renewable energy and/or capacity and environmental attributes per the terms of the Power Purchase Agreement for the Block Island Wind Farm.

A health and safety plan has been developed for all project areas and all National Grid safety and environmental rules will be followed. During the development of the HDD, consideration was given to the Process Hazard Analysis (PHA).

The project was planned with multiple resources. A number of departments are using external resources. The external work will be executed via contracts for both time and material (labor), fixed price (material). Coordination of resource planning and workforce/contractor delivery strategy was implemented and will be coordinated throughout.



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3.8 Execution Risk Appraisal

Number	Detailed Description of Risk / Opportunity	Probability	Impact		Score		Strategy	Pre-Trigger Mitigation Plan	Residual Risk	Post Trigger Mitigation Plan
			Cost	Schedule	Cost	Schedule				
1	Permitting completed by Developer was initiated with conceptual engineering documentation. It is required to obtain their financial support. Amendments on permits are possible when final engineering is completed.	3	4	4	12	12	Mitigate	National Grid Legal, Real Estate and Engineering participate on documentation review and updates to mitigate future actions and requirements	Variances during final engineering	Accept
2	Material Cost Increase caused by copper price	3	3	1	9		Mitigate	Start early process to get competitive bids for major material (34.5kV submarine cable)	Minimal	Accept
3	Construction execution is tight to approved working windows established on permits. These restrictions can affect RFL date if a milestone is not achieved on the approved period of time.	2	3	4	6	8	Mitigate	Develop comprehensive and detailed construction sequence. Communicate with construction personnel to ensure milestones are achieved in a timely fashion.	Minimal	Work overtime or add additional resources to achieve the targets
4	Customer Outreach Plan was initiated by Developer as part of their permitting process. Main focus was to obtain the required permits for the project. The approach was different to National Grid's commitment to the local communities and customers.	3	3	2	9	6	Mitigate	National Grid has implemented a multi-faceted pre-, during-, and post-construction outreach and public relations campaign.	Minimal	Accept
5	Geological, archaeological and environmental investigations were completed by the developer as part of permitting process. Variance to the results can have significant impact on project execution and cost.	3	4	4	12	12	Mitigate	National Grid Legal, Permitting and Engineering participate on documentation review and updates to mitigate future actions and requirements.	Variances during construction	Accept
6	Inverter technology considered on the Wind Turbines requires detailed simulation to assess the impact of this technology on the performance and reliability of the system and underlying interconnection facilities.	4	3	3	12	12	Mitigate	National Grid Engineering performed Subtransmission Impact Study with Wind Turbine PSCAD model.	Minimal	Accept



US Sanction Paper

3.9 Permitting

CONSTRUCTION PERMITS	
Federal Permits	Regulatory Authorities
Right-of-Way Grant for cable in Federal Waters (30 CFR Part 285)	Minerals Management Service
Individual Permit (Section 10 of the Rivers and Harbors Act; Section 404 of the Clean Water Act)	United States Army Corps of Engineers (USACE)
NEPA Review	USACE (Lead Federal Agency); Council on Environmental Quality
Essential Fish Habitat Consultation (Magnuson-Stevens Act); Threatened and Endangered Species Consultation (Section 7 of the Endangered Species Act); Incidental Harassment Authorization (Marine Mammals Protection Act)	National Marine Fisheries Service (NMFS)
Threatened and Endangered Species Consultation (Section 7 of the ESA)	United States Fish and Wildlife Service (USFWS)
Cultural Resources (Section 106 of the National Historic Preservation Act)	USACE and Rhode Island Historical Preservation and Heritage Commission
Determination of no hazard to vessel traffic and Approval for private aid to navigation	United States Coast Guard (USCG)
Conformity Determination/Air Emissions Permit (40 CFR Part 55) and General Stormwater Permit (Section 309 of the Clean Water Act)	United States Environmental Protection Agency (USEPA)
Notice of Proposed Construction or Alteration	Federal Aviation Administration (FAA)
State Permits	Regulatory Authorities
State Assent	Rhode Island Coastal Resources Management Council (CRMC)
Marine Dredging Permit	CRMC
Coastal Consistency Determination	CRMC
Lease/License of Offshore Land	CRMC
Coastal and Freshwater Wetlands Permit	CRMC
Determination of Consistency with WQM Plan	CRMC
Section 106 (NHPA) Consultation	USACE and Rhode Island Historical Preservation and Heritage Commission



US Sanction Paper

Utility Permit for cable installation	Rhode Island Department of Transportation (RIDOT)
RIPDES Construction Storm Water General Permit	RIDEM
Municipal Permits	Regulatory Authorities
Storm water Pollution Prevention Plan Approval	Municipal departments and agencies in New Shoreham, Wakefield, Narragansett, and South Kingston
Temporary Dewatering Permit	
Municipal Engineering Approval	
Tree Removal Approval	
Temporary Fencing Approval	
Local Site Plan Approval	
Zoning Certificates or Variances	
Engineering Release	
Construction Permits	

3.10 Investment Recovery

3.10.1 Investment Recovery and Regulatory Implications

Pursuant to R.I.G.L. §39-26.1-7(f), the Rhode Island Division of Public Utilities and Carriers, on April 2, 2014, has provided its written consent to the Purchase Agreement for the Assets. Narragansett Electric and New England Power Company (NEP) are authorized, and have made a filing with FERC to put into effect transmission rates to recover all costs associated with the purchase of the Assets, construction of the transmission cable and related facilities, and the annual O&M. On September 2, 2014 FERC approved all four agreements required to implement cost recovery for the project. An ancillary benefit of the cable project with Deepwater is that BIPCO will become a transmission customer of NEP and will receive transmission service over the transmission facilities pursuant to a Local Network Service Agreement between BIPCO, NEP, and ISO-NE. The Local Network Services agreement will also allocate the costs of the transmission facilities between Narragansett Electric customers and BIPCO customers such that a small capped portion of the costs will be allocated to BIPCO as set forth in the statute and further described below. The annual cost-recovery



US Sanction Paper

mechanism for the BITS project will be through a fully reconciling rate adjustment from customers of Narragansett and/or BIPCO.

In addition, the statute authorizes Narragansett Electric to recover annually in electric distribution rates all costs incurred in the negotiation, administration, enforcement, transmission engineering associated with the design of the cable, and implementation of the project In Docket No. 4308, the Commission approved Narragansett Electric's revised Transmission Service Cost Adjustment Provision (TSCAP), R.I.P.U.C. No. 2080, which established a clear recovery mechanism to recover all costs associated with the BITS project pursuant to subsection 7(f) of the statute.³ In the event that FERC disallows cost-recovery for BITS and/or the cost allocation with BIPCO, and/or the BITS project is not built, or Narragansett Electric elects not to own the cable, Narragansett Electric is authorized to make a filing with the Commission to recover the engineering and design costs incurred prior to abandonment under either the TSCAP, or the new and separate Long-Term Contracting for Renewable Energy Recovery Provision (LTCRER).⁴

3.10.2 Customer Impact

R.I.G.L. §39-26.1-7(f) provides that the cost allocation between Narragansett Electric customers and BIPCO customers for the transmission cable is structured so that the estimated impact on the typical residential customer bill for such transmission costs for customers in the Town of New Shoreham is higher than the estimated impact on the typical residential customer bill for Narragansett Electric customers. The formula for developing this higher charge for the customers in the Town of New Shoreham will be to allocate the actual cable costs based on the annual peak demands of BIPCO and Narragansett Electric, and to recover the resultant costs in the per kWh charges of each company; provided, that the difference in the individual charge per kWh or per customer/month is capped at a ratio of average demand to peak demand for BIPCO relative to Narragansett Electric of 1.8 to 1.0.

The statute further requires that the revenue requirement for the annual cable costs be calculated in the same manner that the revenue requirement is calculated for other transmission facilities in Rhode Island for local network service under FERC's jurisdiction. This project results in an indicative first full year revenue requirement when the asset is placed in service equal to approximately \$23.261M. This is indicative only. The actual revenue requirement will differ depending upon the timing of the next rate case and/or the timing of the next filing in which the project is included in rate base.

³ Because the preliminary engineering and design costs incurred to date are likely to be capitalized and included in the determination of the annual revenue requirement, and will continue to be incurred as the project progresses, Narragansett deferred recovery of these costs in Docket No. 4308 until such time as it has received FERC approval to begin billing the costs through transmission service rates. See Report and Order, Docket No. 4308 (May 3, 2012).

⁴ The LTCRER was approved by the Commission in Docket No. 4308 in conjunction with the amended TSCAP. See Report and Order, at 6.



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3.10.3 CIAC / Reimbursement

None

3.11 Financial Impact to National Grid

3.11.1 Transmission Cost Summary Table

Project Number	Project Title	Project Estimate Level (%)	Spend (\$M)	Prior Yrs	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	Total	
					2016/17	2017/18	2018/19	2019/20	2020/21	2021/22		
C044795	BITS Block Island Substation	+/- 10%	CapEx	3.399	8.268	0.004	0.000	0.000	0.000	0.000	0.000	11.671
			OpEx	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020
			Removal	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007
			Total	3.426	8.268	0.004	0.000	0.000	0.000	0.000	0.000	11.698
C044797	BITS Mainland Substation	+/- 10%	CapEx	3.595	4.425	0.004	0.000	0.000	0.000	0.000	0.000	8.024
			OpEx	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
			Removal	0.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.035
			Total	3.631	4.425	0.004	0.000	0.000	0.000	0.000	0.000	8.060
C044798	BITS 34.5kV Line	+/- 10%	CapEx	50.645	61.161	0.010	0.000	0.000	0.000	0.000	0.000	111.816
			OpEx	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.021
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	50.666	61.161	0.010	0.000	0.000	0.000	0.000	0.000	111.837
C059842	BITS West Kingston Protection Upgrades	+/- 10%	CapEx	0.087	0.152	0.001	0.000	0.000	0.000	0.000	0.000	0.240
			OpEx	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	0.087	0.152	0.001	0.000	0.000	0.000	0.000	0.000	0.240
Total Project Sanction			CapEx	57.726	74.006	0.019	0.000	0.000	0.000	0.000	0.000	131.751
			OpEx	0.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.042
			Removal	0.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.042
			Total	57.810	74.006	0.019	0.000	0.000	0.000	0.000	0.000	131.835

3.11.2 Transmission Project Budget Summary Table

Project Costs per Business Plan

\$M	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1 (2016/17)	Yr. 2 (2017/18)	Yr. 3 (2018/19)	Yr. 4 (2019/20)	Yr. 5 (2020/21)	Yr. 6 + (2021/22)	
CapEx	57.726	55.482	0.000	0.000	0.000	0.000	0.000	113.208
OpEx	0.042	0.002	0.000	0.000	0.000	0.000	0.000	0.044
Removal	0.042	0.001	0.000	0.000	0.000	0.000	0.000	0.043
Total Cost in Bus. Plan	57.810	55.486	0.000	0.000	0.000	0.000	0.000	113.296

Variance (Business Plan-Project Estimate)

\$M	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1 (2016/17)	Yr. 2 (2017/18)	Yr. 3 (2018/19)	Yr. 4 (2019/20)	Yr. 5 (2020/21)	Yr. 6 + (2021/22)	
CapEx	0.000	(18.524)	(0.019)	0.000	0.000	0.000	0.000	(18.543)
OpEx	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.002
Removal	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.001
Total Cost in Bus. Plan	0.000	(18.520)	(0.019)	0.000	0.000	0.000	0.000	(18.539)



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3.11.3 Distribution Cost Summary Table

Project Number	Project Title	Project Estimate Level (%)	Spend (\$M)	Prior Yrs	Current Planning Horizon						Total	
					Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +		
					2016/17	2017/18	2018/19	2019/20	2020/21	2021/22		
C046386	BITS Wakefield Sub Upgrade	+/- 10%	CapEx	0.297	1.711	0.001	0.000	0.000	0.000	0.000	0.000	2.009
			OpEx	0.000	0.022	0.000	0.000	0.000	0.000	0.000	0.000	0.022
			Removal	0.009	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.011
			Total	0.306	1.735	0.001	0.000	0.000	0.000	0.000	0.000	0.000
Total Project Sanction			CapEx	0.297	1.711	0.001	0.000	0.000	0.000	0.000	0.000	2.009
			OpEx	0.000	0.022	0.000	0.000	0.000	0.000	0.000	0.000	0.022
			Removal	0.009	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.011
			Total	0.306	1.735	0.001	0.000	0.000	0.000	0.000	0.000	2.042

3.11.4 Distribution Project Budget Summary Table

Project Costs per Business Plan

\$M	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
		2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	
CapEx	0.297	0.519	0.000	0.000	0.000	0.000	0.000	0.816
OpEx	0.000	0.010	0.000	0.000	0.000	0.000	0.000	0.010
Removal	0.009	0.010	0.000	0.000	0.000	0.000	0.000	0.019
Total Cost in Bus. Plan	0.306	0.540	0.000	0.000	0.000	0.000	0.000	0.846

Variance (Business Plan-Project Estimate)

\$M	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
		2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	
CapEx	0.000	(1.192)	(0.001)	0.000	0.000	0.000	0.000	(1.193)
OpEx	0.000	(0.012)	0.000	0.000	0.000	0.000	0.000	(0.012)
Removal	0.000	0.009	0.000	0.000	0.000	0.000	0.000	0.009
Total Cost in Bus. Plan	0.000	(1.195)	(0.001)	0.000	0.000	0.000	0.000	(1.196)

3.11.5 Cost Assumptions

The accuracy level of estimate for each project is identified in table 3.11.1 and table 3.11.3.

The project estimate considers \$9.480M for the commercial negotiation closure with Deepwater Wind to purchase the conceptual engineering, permits, real estate rights and other work Deepwater Wind has competed to date on the project.

The project estimate considers \$47.970M for an EPC contract for the purpose of construction and full implementation for submarine cable work.



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The project estimate considers \$12.587M for a construction contract for the purpose of construction and full implementation for the underground infrastructure on mainland and Block Island for land cable work.

The project estimate considers \$5.068M for a construction contract for the purpose of construction and full implementation for the substation works on mainland and Block Island.

Standard material procurement process to be followed, and there are no expected delivery delays.

3.11.6 Net Present Value / Cost Benefit Analysis

Not financially driven.

3.11.7 Additional Impacts

No additional impacts are anticipated from this project.

3.12 Statements of Support

3.12.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Investment Planner - New England- Distribution	Glen DiConza	Endorses relative to 5-year business plan
Investment Planner - New England- Transmission	Michelle Park	Endorses relative to 5-year business plan
Resource Planning - Transmission. Line and Substation	Mark Phillips	Endorses Resources, cost estimate, schedule, and Portfolio Alignment
Transmission Asset Management/ Planning	Kasia Kulbacka	Endorses scope, estimate, and schedule with the company's goals, strategies, and objectives
Distribution Asset Management/ Planning	Alan Labarre	Endorses scope, estimate, and schedule with the company's goals, strategies, and objectives
Engineering and Design - Substation	Suzan Martuscello	Endorses scope, design, conformance with design standards



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Transmission Engineering	Lisa Sasur	Endorses scope, design, conformance with design standards
Engineering and Design - Protections and Telecom	Leonard Swanson	Endorses scope, design, conformance with design standards
Project Management	Sonny Anand	Endorses resources, cost estimate, schedule
Electric Project Estimation	Jammie Simonds	Endorses Cost Estimate

3.12.2 Reviewers

The reviewers have provided feedback on the content/language of the paper.

Function	Individual
Finance	Patricia Easterly Richard Helm
Regulatory	Peter Zschokke
Procurement	Art Curran
Jurisdictional Delegates	Jim Patterson Terron Hill
Control Centers (CC)	Will Houston / Michael Gallagher

4 Appendices

4.1 Sanction Request Breakdown by Project

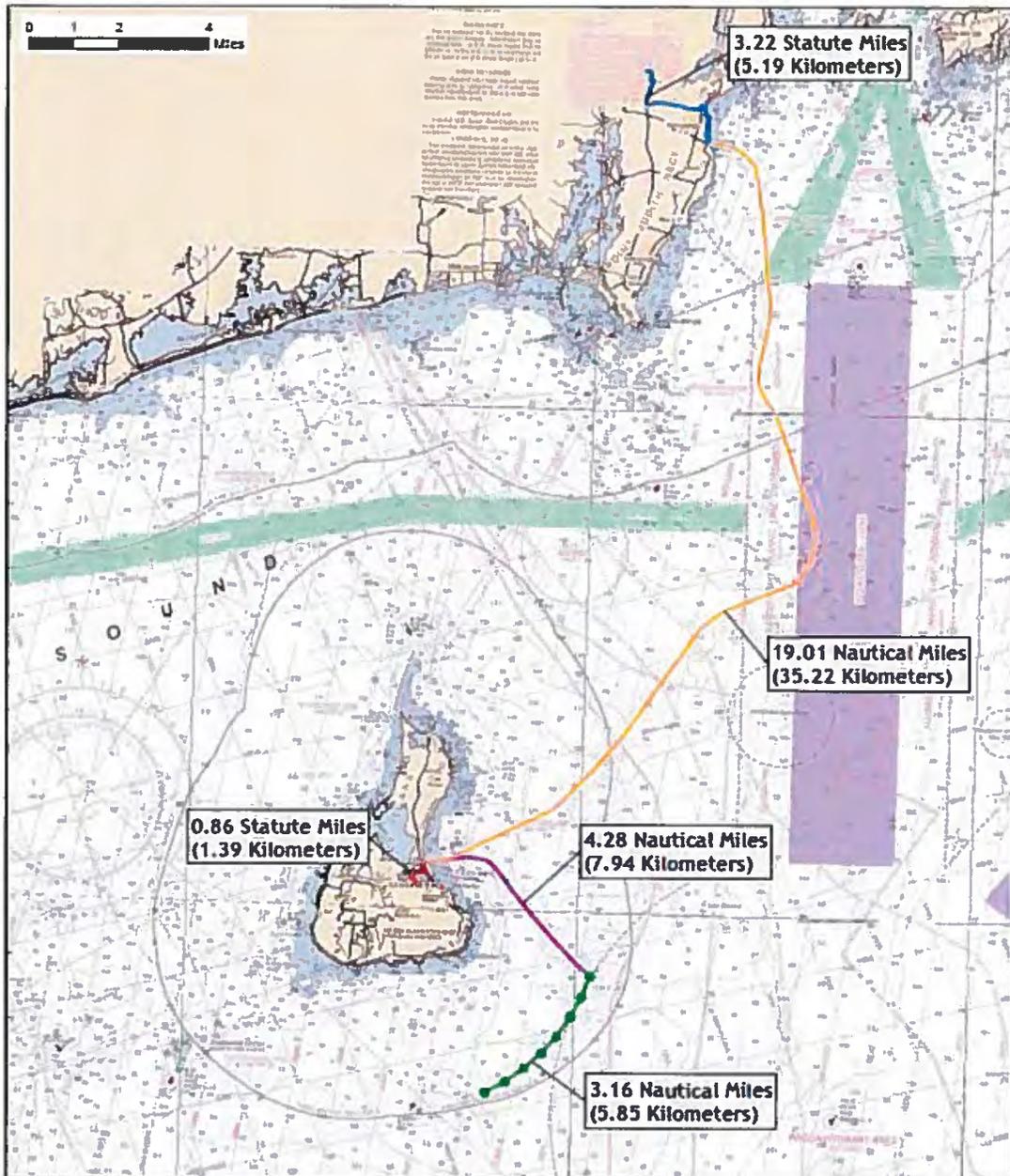
N/A



US Sanction Paper

4.2 Other Appendices

Appendix A.1: Geographical Map of Proposed System





US Sanction Paper

4.3 *NPV Summary*

4.4 *Customer Outreach Plan*

Because of the complexities of the project, construction impacts, historical nature of Deepwater Wind's public facing efforts and National Grid's commitment to the local communities and customers, National Grid has implemented a multi-faceted pre-, during-, and post-construction outreach and public relations campaign. The goal of the plan is to position National Grid as an experienced and trusted partner in delivering an important and ground-breaking project with a focus on ensuring our local relationships are preserved beyond the life of the project. Local contracting support through an existing public outreach vendor, the RDW Group, was secured to assist in this effort. Public outreach was launched in May 2015 and continues to push proactive communications with all levels of stakeholders, including public and elected officials, local residents and businesses, fisheries community, etc. Through an interactive website, Twitter account, webinar, public open houses, town meetings, mapping and visuals, advertisements, stakeholder and media briefings, media and special events, door-to-door canvassing, electronic and static signage, and direct mailing, the outreach team provides regular updates and collects feedback to improve the public project outcomes. Outreach efforts are anticipated to conclude at the end of the 2016 calendar year.

C046397

Fdr 1109A - Install Cable Dorrance

5360-Narragansett Electric and Gas Project Revision Detail Report

Fund Project Number: <u>C046397</u>	USSC #:
Revision: <u>3</u>	Budget Version: <u>Default</u>
Project Title: <u>Fdr 1109A - Install Cable Dorrance</u>	
Project Description: Feeder 1109 out of Dyer Street substation in Providence is one of eight feeders supplying the downtown Providence AC network. This project covers expenditures necessary to replace aged paper-lead cable in a limited area on the "A" portion of the feeder as part of the underground cable replacement initiative.	

Project Status: <u>open</u>	
Responsible Person: <u>MOKEY, MICHAEL</u>	Initiator: <u>Holden, Eric H</u>
Spending Rationale: <u>Asset Condition</u>	Funding Type: <u>P Electric Distribution Line RI</u>
Budget Class: <u>Asset Replacement</u>	
Capital by Category:	
Program Code:	
Project Risk Score: <u>36</u>	Project Complexity Score: <u>14</u>

Project Schedule / Expenditures

Revision Status: <u>Approved</u>					
Est Start Date: <u>9/19/2012</u>		Est Complete Date: <u>3/31/2015</u>			
Est In-Service Date: <u>3/31/2014</u>					
TTD Actuals: <u>\$397,351</u>		As Of: <u>10/2/2017</u>			
Cost Breakdown	<u>Capital</u>	<u>Expense</u>	<u>Removal</u>	<u>Total</u>	<u>Credits</u>
	<u>\$445,000</u>	<u>\$0</u>	<u>\$25,000</u>	<u>\$470,000</u>	<u>\$0</u>

Justification / Risk Identification:

This project proactively replaces aged PILC underground cable as part of the underground cable asset replacement strategy. Scope of replacements includes aged cable (78 years and older) as well as that which is necessary to effect the required transition splicing from solid dielectric cable to existing paper-lead cable.

Project Scope:

Install 2760 ckt ft of 4/0 Cu 15 kV CN cable, 1980 ckt ft of 500 kcmil compact Cu 15 kV FSN cable, and miscellaneous underground equipment.
 Remove various PILC cable: 1480 ft of 3/C-500 kcmil Cu, 90 ft of 3/C-450 kcmil Cu, 1800 ft of 3-1/C-4/0 Cu, 360 ft of 3/C-1/0 Cu, 130 ft of 3/C-100 kcmil Cu, 500 ft of 3-1/C-1/0 Cu, and miscellaneous underground equipment.

Project Alternatives Considered:

REDACTED - CEII Information has been Redacted

PowerPlan ----- PPGPRD Database

File Edit Subsystem Batch Admin Preferences Window Help

Projects Assets Tables CR MyPPlan Help Calc Print Win

Funding Project Estimates - Summary C046397 Current Total Authorized Amount: \$470,000.00

Title

Project Number

Budget Version	Default (active)
Revision	Conceptual
Revision Status	Approved
Revision No.	<input type="text" value="3"/>
Est Start Date	<input type="text" value="09/19/2012"/>
Est Complete Date	<input type="text" value="03/31/2015"/>
Est In Srvc Date	<input type="text" value="03/31/2014"/>
Capital	<input type="text" value="\$445,000.00"/>
Expense	<input type="text" value="\$0.00"/>
Jobbing	<input type="text" value="\$0.00"/>
Retirement	<input type="text" value="\$0.00"/>
Removal	<input type="text" value="\$25,000.00"/>
Total (excl. Rets.)	<input type="text" value="\$470,000.00"/>
Credits	<input type="text" value="\$0.00"/>
Net	<input type="text" value="\$470,000.00"/>

Revision Info

Revision of 3

[Find Revision](#)

Show 'Budget Only' Revisions

Spending Estimates:

Edit:

Property Estimates:

Other:

Record of 1

C046398

Memorial Blvd Easton's Beach inst d

5360-Narragansett Electric and Gas Project Revision Detail Report

Fund Project Number: <u>C046398</u>	USSC #: <u>USSC-14-123 v2C</u>
Revision: <u>9</u>	Budget Version:
Project Title: <u>Memorial Blvd Easton's Beach inst d</u>	
Project Description: This is an asset replacement project to relocate 2 - 25 kV circa 1965 direct buried cables from a ROW where it interferes with the cities Newport's drainage ditch to a duct and manhole system located in the road. The project involves installing 3,200 ft of 9 way duct bank along Memorial Blvd (Easton's Beach). Installing 2 - 25 kV 3 - 1/C, 500 kcmil CU	

Project Status: <u>Closed</u>	
Responsible Person: <u>BURKE, JOHN C</u>	Initiator: <u>Holden, Eric H</u>
Spending Rationale: <u>Asset Condition</u>	Funding Type: <u>P Electric Distribution Line R1</u>
Budget Class: <u>Asset Replacement</u>	
Capital by Category:	
Program Code:	
Project Risk Score: <u>18</u>	Project Complexity Score: <u>19</u>

Project Schedule / Expenditures

Revision Status: <u>Approved</u>					
Est Start Date: <u>9/19/2012</u>			Est Complete Date: <u>12/30/2016</u>		
Est In-Service Date: <u>6/30/2016</u>					
TTD Actuals: <u>\$1,481,730</u>			As Of: <u>10/2/2017</u>		
Cost Breakdown	<u>Capital</u>	<u>Expense</u>	<u>Removal</u>	<u>Total</u>	<u>Credits</u>
	<u>\$1,440,000</u>	<u>\$31,000</u>	<u>\$10,000</u>	<u>\$1,481,000</u>	<u>\$0</u>

Justification / Risk Identification:

The direct-buried cables are located between the roadway and a drainage moat. Storms and drainage moat flooding have caused severe erosion of the embankment along which the cables are installed. For a length of approximately 300 feet, the required protective cover over the cables cannot be maintained. One circuit was completely exposed and undermined for a length of 5 feet. Permanent restoration of adequate cover is not possible without disturbing or altering the adjacent drainage moat, which is an integral part of the Easton Pond water supply to the City of Newport.

Project Scope:

The project involves installing 3,200 ft of 9 way duct bank on Memorial Blvd (Easton's Beach). Installing 3,500 circuit ft of 2 - 25 kV. 3 - 1/C, 500 kcmil CU, CN, XLPE cables. Retiring in place 2- 25 kV, 3c 250 kcmil CU, Plastex covered, C-L-X, direct buried cables. Retire the above ground splice tray and the surrounding protective fence on the Newport side of Memorial Blvd.

Project Alternatives Considered:

<Enter data here>

Additional Notes:

<Enter data here>

Related Projects:

Project Number:

Project Name:

Approvals

Line 1:	Date	<u>12/16/2016 12:09:20</u>	Approver	<u>carlim</u>	<u>USSC Approver</u>
Line 2:	Date		Approver		
Line 3:	Date		Approver		
Line 4:	Date		Approver		
Line 5:	Date		Approver		

*****Project Authorization is for Approved Revision Total Estimated Cost +10%*****

REDACTED - CEII Information has been Redacted

PowerPlan ----- PPGPRD Database

File Edit Subsystem Batch Admin Preferences Window Help

Projects Assets Tables CR MyPPlan Help Calc Print Win

Funding Project Estimates - Summary C046398 Current Total Authorized Amount: \$1,48...

Title
 Project Number

Budget Version	No Assigned Versions
Revision	Closure
Revision Status	Approved
Revision No.	<input type="text" value="9"/>
Est Start Date	<input type="text" value="09/19/2012"/>
Est Complete Date	<input type="text" value="12/30/2016"/>
Est In Srvc Date	<input type="text" value="06/30/2016"/>
Capital	<input type="text" value="\$1,440,000.00"/>
Expense	<input type="text" value="\$31,000.00"/>
Jobbing	<input type="text" value="\$0.00"/>
Retirement	<input type="text" value="\$0.00"/>
Removal	<input type="text" value="\$10,000.00"/>
Total (excl. Ret.)	<input type="text" value="\$1,481,000.00"/>
Credits	<input type="text" value="\$0.00"/>
Net	<input type="text" value="\$1,481,000.00"/>

Revision Info

Revision of 9

Show 'Budget Only' Revisions

Spending Estimates:

Property Estimates:

Edit:

Other:

Record of 1

D



USSC Closure Paper

Title:	Memorial Blvd Cable Relocation	Sanction Paper #:	USSC-14-123 v2C
Project #:	C046398	Sanction Type:	Closure
Operating Company:	The Narragansett Electric Co.	Date of Request:	December 13, 2016
Author:	John Burke	Sponsor:	Carol Sedewitz, Vice President, Electric Asset Management
Utility Service:	Electricity T&D	Project Manager:	John Burke

1 Executive Summary

This paper is presented to close C046398. The total spend was \$1.481M. The latest sanctioned amount for this project was \$1.615M.

Note the original sanction amount was \$1.415M.

The final spend amount is \$1.481M broken down into:

- \$1.440M Capex
- \$0.031M Opex
- \$0.010M Removal

2 Project Summary

This is an asset replacement project to relocate 2 - 25 kV, non-standard, direct buried, submarine cables from the shoulder of the road, where they interfere with a drainage moat and the roadway's storm drainage system, to a duct and manhole system located within the roadway. This project was successfully placed in service in March 2016. Due to the drought this past summer, there is an area of the former laydown yard that requires re-seeding in the spring of 2017.



USSC Closure Paper

3 Over / Under Expenditure Analysis

3.1 Summary Table

Actual Spending (\$M)			
Project #	Description		Total Spend
C046398	Memorial Blvd Cable Relocation	Capex	1.440
		Opex	0.031
		Removal	0.010
		Total	1.481
Total		Capex	1.440
		Opex	0.031
		Removal	0.010
		Total	1.481

Project Sanction Summary Table			
Project Sanction Approval (\$M)			Total Spend
		Capex	1.390
		Opex	0.016
		Removal	0.009
		Total Cost	1.415
Sanction Variance (\$M)			Total Spend
		Capex	(0.050)
		Opex	(0.015)
		Removal	(0.001)
		Total Variance	(0.066)

3.2 Analysis

This project was re-sanctioned due to higher than anticipated costs for final restoration of the roadway. State inspectors required milling and paving of the roadway from curb to centerline. This almost tripled the area requiring work and as a result increased costs by \$0.130M at the end of the project.



USSC Closure Paper

Improvements / Lessons Learned

The cost of final restoration was based on the minimum requirements set forth in the Rhode Island Department of Transportation (RIDOT) permit. Therefore, the cost for final restoration was based on the minimum of a one foot offset for milling and paving. After milling RIDOT inspectors instructed the contractor to mill and pave from curb to center line.

The lesson learned here is to confirm the state’s requirement and expectation regarding paving or have the contractor bid the minimum and maximum paving amount. This would reduce the risk associated with change orders when a project is in final restoration. (LL#713)

4 Closeout Activities

The following closeout activities have been completed.

Activity	Completed
All work has been completed in accordance with all National Grid policies	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All work orders and funding projects have been closed	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All as-builts have been completed	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All lessons learned have been entered appropriately into the lesson learned database	<input checked="" type="radio"/> Yes <input type="radio"/> N/A



USSC Closure Paper

5 Statements of Support

6.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Investment Planning	Glen DiConza	Endorses relative to 5-year business plan or emergent work
Resource Planning	Anne Wyman	Endorses construction resources, cost estimate, schedule, and portfolio alignment
Asset Management / Planning	Alan Labarre	Endorses scope, estimate, and schedule with the company's goals, strategies, and objectives
Project Management	Andrew Schneller	Endorses resources, cost estimate, schedule
Electric Project Estimation	Jammie Simonds	Endorses Cost Estimate

6.2 Reviewers

The reviewers have provided feedback on the content/language of the paper.

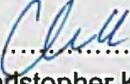
Function	Individual
Finance	Patricia Easterly
Regulatory	Peter Zschokke
Jurisdictional Delegate	Jim Patterson
Procurement	Art Curran
Control Center	Michael Gallagher

USSC Closure Paper



6 Decisions

I approve this paper.

Signature..........Date...December 13, 2016.....
Executive Sponsor – Christopher Kelly, Acting SVP Electric Process and Engineering

C046399

Fdr 1103 Inst Cable So Main St Prov

5360-Narragansett Electric and Gas Project Revision Detail Report

Fund Project Number: <u>C046399</u>	USSC #:
Revision: <u>3</u>	Budget Version: <u>Default</u>
Project Title: <u>Fdr 1103 Inst Cable So Main St Prov</u>	
Project Description: Feeder 1103 out of Dyer Street substation in Providence supplies customers in the East Side of Providence. This project covers expenditures necessary to replace aged paper-lead cable in a limited area on the feeder as part of the underground cable replacement initiative	

Project Status: <u>Closed</u>	
Responsible Person: <u>CURLEY, JOSEPH</u>	Initiator: <u>Holden, Eric H</u>
Spending Rationale: <u>Asset Condition</u>	Funding Type: <u>P Electric Distribution Line RI</u>
Budget Class: <u>Asset Replacement</u>	
Capital by Category:	
Program Code:	
Project Risk Score: <u>36</u>	Project Complexity Score: <u>14</u>

<u>Project Schedule / Expenditures</u>					
Revision Status:	<u>Approved</u>				
Est Start Date:	<u>9/20/2012</u>	Est Complete Date:	<u>3/31/2015</u>		
Est In-Service Date:	<u>3/31/2014</u>				
TTD Actuals:	<u>\$432,942</u>	As Of:	<u>10/2/2017</u>		
Cost Breakdown	<u>Capital</u>	<u>Expense</u>	<u>Removal</u>	<u>Total</u>	<u>Credits</u>
	<u>\$215,000</u>	<u>\$130,000</u>	<u>\$85,000</u>	<u>\$430,000</u>	<u>\$0</u>

Justification / Risk Identification:

This project proactively replaces aged PILC underground cable as part of the underground cable asset replacement strategy. Scope of replacements includes aged cable (85 years and older) as well as that which is necessary to effect the required transition splicing from solid dielectric cable to existing paper-lead cable.

Project Scope:

Install 100 ckt ft of 500 kcmil Cu EPR 15 kV CN cable, 5200 ckt ft of 4/0 Cu 15 kV CN cable, and miscellaneous underground equipment.
 Remove various PILC cable: 285 ft of 3/C-300 kcmil Cu, 3500 ft of 3/C-3/0 Cu, 350 ckt ft of 1/C-500 kcmil Cu, 300 ckt ft of 1/C-4/0 Cu, and 300 ckt ft of 1/C-3/0 Cu.

Project Alternatives Considered:

CL 3/22/13 - Est rev 1 - \$30K for eng/design. Conceptual estimate \$425K (375K capital, 10K O&M, 40K removal).

Additional Notes:

Project initiated for inclusion in FY14 budget and RI ISR - CL 9/20/12.
Attached revised sketch to reflect mainline construction for future new 12 kV feeder from new 12 kV sub - CL 9/30/13.

Sanction from \$30k to \$430K email sent from Julie Spaziano. Document attached. Details on the justification and scope tab. This project was approved for 30K in March, 2013. The original 30K estimate was for Engineering & Construction only. Based on the sketch it has been determined that the job will cost 430K for the total contract.

Related Projects:

Project Number:

Project Name:

Approvals

Line 1:	Date	<u>1/28/2014 12:45:50</u>	Approver	<u>labara</u>	<u>Approver 1</u>
Line 2:	Date		Approver		
Line 3:	Date		Approver		
Line 4:	Date		Approver		
Line 5:	Date		Approver		

*****Project Authorization is for Approved Revision Total Estimated Cost +10%*****

REDACTED - CEII Information has been Redacted

PowerPlan ----- PPGPRD Database

File Edit Subsystem Batch Admin Preferences Window Help

Projects Assets Tables CR MyPlan Help Calc Print Win

Funding Project Estimates - Summary C046399 Current Total Authorized Amount: \$430,000.00

Title: Fdr 1103 Inst Cable So Main St Prov
Project Number: C046399

Budget Version Default [active]
Revision: []
Revision Status: Approved
Revision No.: 3
Est Start Date: 09/20/2012
Est Complete Date: 03/31/2015
Est In Srvc Date: 03/31/2014
Capital: \$215,000.00
Expense: \$130,000.00
Jobbing: \$0.00
Retirement: \$0.00
Removal: \$85,000.00
Total (excl. Rets.): \$430,000.00
Credits: \$0.00
Net: \$430,000.00

Revision Info: Other Updates

Revision: [] 3 of 3
Find Revision [] Send for Approval []
 Show 'Budget Only' Revisions

Spending Estimates:
Grid Estimates
Forecast
Summarize from W/O
Copy Estimate

Property Estimates:
Unit Estimates
Create As Built
Delete Used Estimates

Edit:
New Revision
Delete Revision
Update
Update With Actuals
Import Estimates

Other:
Revision Comments
Released Dollars
Substitution
Slide

Version Compare
Close

Record 1 of 1
Audits

Project Re-Sanction Request

Version 8.3

Note: Fill data in the grey area and email form to **Mario Carlino** and the appropriate IP analyst.

Gas - Tracy Nguyen
Distribution - Janice Flynn
Transmission - Matt Roby

*Date:	1/17/2014
*Operating Company:	The Narragansett Electric Co.
*PowerPlant Project Id:	C046399
*Project Name:	19600 Fdr 1103 - Install Cable South Main St., Providence
Project Engineer:	John Castro
Project Manager:	Mike Mokey

Original Project Estimate

*Date of Original Sanction:	3/22/2013
-----------------------------	-----------

Total	Capex	Opex	Removal
\$30,000	\$30,000	\$0	\$0

Revised Project Estimate

Total	Capex	Opex	Removal
\$430,000	\$215,000	\$130,000	\$85,000

Cash Flows

Previous FY	Capex	Opex	Removal
\$0			

Current FY	Capex	Opex	Removal
\$430,000	\$215,000	\$130,000	\$85,000

FY+1	Capex	Opex	Removal
\$0			

FY+2	Capex	Opex	Removal
\$0			

Customer Contribution	

Reason for Revision

<input checked="" type="checkbox"/>	Revised forecast either exceeds or is lower than the Approved Amount - Project Still In Process
	New Project Estimated Completion Date: 3/31/2015

<input type="checkbox"/>	Actual Spending either exceeds or is lower than the Approved Amount – Project is Complete
--------------------------	---

Reason for Increased Spending (Please expand the row height if box doesn't fit)

<input checked="" type="checkbox"/>	Change in Scope (Material, Labor or Other)
-------------------------------------	--

Project Re-Sanction Request

	Install approximately 3400' of 15kv, 4/0 Cu, 3-1C cable, 1360' of 15kv, 1000kcmil Cu, 3-1/C cable, 400' of 500kcmil Cu, 3-1/C cable, and associated UG splices and equipment. Remove approximately 3700' of 4/0 Cu 1-3/C P&L cable and associated UG equipment.
<input type="checkbox"/>	Resource Allocation (Schedule, Delay, OT, or Contractor) [Redacted]
<input checked="" type="checkbox"/>	Low/High Estimate This project was approved for 30K in March, 2013. The original 30K estimate was for Engineering & Design costs only. Based on the design it has been determined that the job will cost 430K for the total project including construction. The following is a breakdown of costs for the project, 140K for Labor and Labor Overheads including Engineering & Design, 260K for Materials and Material Overheads, 15K for Transportation and 15K for Police protection bringing the total project cost to 430K
<input type="checkbox"/>	External Forces (Permitting Requirements, Weather, Contractor Issues, etc) [Redacted]

In-service Dates

*Original In-service Date:
 *Revised In-service Date:

C046400

Capital Ctr Fdrs - Elim T-body join

5360-Narragansett Electric and Gas Project Revision Detail Report

Fund Project Number: <u>C046400</u>	USSC #: <u>USSC-16-212C</u>
Revision: <u>9</u>	Budget Version: <u>Default</u>
Project Title: <u>Capital Ctr Fdrs - Elim T-body join</u>	
Project Description: Replace T-Body splice on the Lippitt Hill 79F1 fdr in the capital center area of providence	

Project Status: <u>Closed</u>	
Responsible Person: <u>CURLEY, JOSEPH</u>	Initiator: <u>Holden, Eric H</u>
Spending Rationale: <u>Asset Condition</u>	Funding Type: <u>P Electric Distribution Line RI</u>
Budget Class: <u>Asset Replacement</u>	
Capital by Category:	
Program Code:	
Project Risk Score: <u>36</u>	Project Complexity Score: <u>14</u>

Project Schedule / Expenditures

Revision Status: <u>Approved</u>					
Est Start Date: <u>9/20/2012</u>		Est Complete Date: <u>1/30/2015</u>			
Est In-Service Date: <u>1/30/2015</u>					
TTD Actuals: <u>\$1,014,165</u>		As Of: <u>10/2/2017</u>			
Cost Breakdown	<u>Capital</u>	<u>Expense</u>	<u>Removal</u>	<u>Total</u>	<u>Credits</u>
	<u>\$836,000</u>	<u>\$13,000</u>	<u>\$166,000</u>	<u>\$1,015,000</u>	<u>\$0</u>

Justification / Risk Identification:
Project initiated for inclusion in FY14 budget and RI ISR - CL 9/20/12 at request of Cody) This project starts the elimination of T- bodies on all fdrs in the Capital District, Providence RI. This work is necessary for the long term stability of the underground system in this area. The project will reduce the potential for ad-hoc / emergency repairs. Performance history of the separable T-body splices installed in 1980's and 1990's indicates a greater potential for failure than other type of splices used in our system. These troubled splices often present themselves as hot spots

Project Scope:
Replace T-body splices and cable sections as required on Lippitt Hill 79F1 Fdr along Charles St, Canal St, Smith St and the Providence Place mall facility in Providence, RI. Previous survey's indicate there are approximately 46 MH that have known T bodies. The pending design should also consider the replacement of T-bodies on other capital fdrs as the opportunity presents, that is, fdrs in the same MH that are switched out so work can be done on the 79F1.

Project Alternatives Considered:

This is an asset replacement project. The consequence of avioding capital spending on this project is to continue to spend 0&M dollars on emergency repairs.

Additional Notes:

Re-Sanction from \$700K to \$950K from Julie Spaziano. Continued identification of T-body splicing by Engineering has increased the scope of this project by 250k bringing the total project cost to 950k.
Known T-body splice locations on the Lippitt Hill Sub 79F1 fdr: Canel St MH1274, MH2681. Gaspee MH2648. MH 2649 and MH2651 and Providence Place Mall MH 2631 and 2632.
Use 15 kV, 1000 kcmil CU EPR cable for all section replacements.

Related Projects:

Project Number:

Project Name:

Approvals

Line 1:	Date <u>7/1/2016 08:08:38</u>	Approver <u>carlim</u>	<u>USSC Approver</u>
Line 2:	Date	Approver	
Line 3:	Date	Approver	
Line 4:	Date	Approver	
Line 5:	Date	Approver	

*****Project Authorization is for Approved Revision Total Estimated Cost + 10%*****

REDACTED - CEII Information has been Redacted

The Narragansett Electric Company
d/b/a National Grid
RIPUC Docket No. 4770
Attachment PUC 1-16-1 part 1 of 2
Page 517 of 889

PowerPlan ----- PPGPRD Database

File Edit Subsystem Batch Admin Preferences Window Help

Projects Assets Tables CR MyPPlan Help Calc Print Win

Funding Project Estimates - Summary C046400 Current Total Authorized Amount: \$1,015,000.00

Title: Capital Ctr Fdrs - Elim T-body join
Project Number: C046400

Budget Version	Default (active)
Revision	16-212C
Revision Status	Approved
Revision No.	9
Est Start Date	09/20/2012
Est Complete Date	01/30/2015
Est In Srvc Date	01/30/2015
Capital	\$836,000.00
Expense	\$13,000.00
Jobbing	\$0.00
Retirement	\$0.00
Removal	\$166,000.00
Total (excl. Rets.)	\$1,015,000.00
Credits	\$0.00
Net	\$1,015,000.00

Revision Info: Other Updates

Revision: 9 of 9 [K] [<] [>] [>I]
[Find Revision](#) [Send for Approval]

Show 'Budget Only' Revisions

Spending Estimates:
Grid Estimates
Forecast
Summarize from W/O
Copy Estimate

Property Estimates:
Unit Estimates
Create As Built
Delete Used Estimates

Edit:
New Revision
Delete Revision
Update
Update With Actuals
Import Estimates

Other:
Revision Comments
Released Dollars
Substitution
S/ide

Version Compare Close

Record 1 of 1 [K] [<] [>] [>I]

Audits



USSC Closure Paper

Title:	Capital Center Feeders - Elim T-body joint	Sanction Paper #:	USSC-16-212C
Project #:	C046400	Sanction Type:	Closure
Operating Company:	The Narragansett Electric Co.	Date of Request:	06/07/2016
Author:	Joe Curley	Sponsor:	Carol Sedewitz, VP Electric Asset Management
Utility Service:	Electricity T&D	Project Manager:	Joe Curley

1 Executive Summary

This paper is presented to close C046400. The total spend was \$1.015M The latest sanctioned amount for this project was \$0.950M.

The final spend amount is \$1.015M broken down into:

- \$0.836M Capex*
- \$0.013M Opex*
- \$0.166M Removal*

2 Project Summary

This project starts the elimination of T- bodies on all feeders in the Capital District Underground Area of Providence. This work is necessary for the long term stability of the underground system in this area. The project will reduce the potential for ad-hoc / emergency repairs. Performance history of the separable T-body splices installed in 1980's and 1990's indicates a greater potential of failure than other types of splices used in our system. These troubled splices present themselves as hot spots which require ad-hoc maintenance before scheduled work can begin. Proactive replacement is expected to reduce both O&M cost and restoration times for customers.



USSC Closure Paper

3 Over / Under Expenditure Analysis

3.1 Summary Table

Actual Spending (\$M)			
Project #	Description		Total Spend
C046400	Capital Ctr Fdrs - Elim T-body join	Capex	0.836
		Opex	0.013
		Removal	0.166
		Total	1.015
Total		Capex	0.836
		Opex	0.013
		Removal	0.166
		Total	1.015

Project Sanction Summary Table			
Project Sanction Approval (\$M)			Total Spend
		Capex	0.808
		Opex	0.047
		Removal	0.095
		Total Cost	0.950
Sanction Variance (\$M)			Total Spend
		Capex	(0.028)
		Opex	0.034
		Removal	(0.071)
		Total Variance	(0.065)

3.2 Analysis

4 Improvements / Lessons Learned

This project was originally created due to two T-Body failures that occurred in a short period of time on this feeder affecting the Capital Center and sensitive customer loads. Due to the condition of the T bodies, it was determined that additional T bodies in critical locations should be proactively replaced on the 79F1 to try to ensure improved reliability on this feeder.

5 Closeout Activities



USSC Closure Paper

The following closeout activities have been completed.

Activity	Completed
All work has been completed in accordance with all National Grid policies	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All work orders and funding projects have been closed	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All as-builts have been completed	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All lessons learned have been entered appropriately into the lesson learned database	<input checked="" type="radio"/> Yes <input type="radio"/> N/A

6 Statements of Support

6.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Investment Planning	Glen DiConza	Endorses relative to 5-year business plan or emergent work
Resource Planning	Anne Wyman, Mark Phillips	Endorses construction resources, cost estimate, schedule, and portfolio alignment
Asset Management/Planning	Alan Labarre	Endorses scope, estimate, and schedule with the company's goals, strategies, and objectives

6.2 Reviewers

The reviewers have provided feedback on the content/language of the paper.

USSC Closure Paper



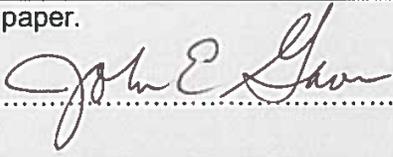
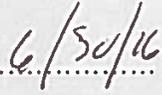
Function	Individual
Finance	Mark Collison
Regulatory	Peter Zschokke
Jurisdictional Delegate	Jim Patterson
Procurement	Art Curran

USSC Closure Paper



7 Decisions

I approve this paper.

Signature..........Date..........

Executive Sponsor – Christopher Kelly,
Acting Senior Vice President – Electric Process & Engineering

C046405

Fdr 1113 Inst Cable Fountain St Pro

5360-Narragansett Electric and Gas Project Revision Detail Report

Fund Project Number: <u>C046405</u>	USSC #:
Revision: <u>4</u>	Budget Version: <u>Default</u>
Project Title: <u>Fdr 1113 Inst Cable Fountain St Pro</u>	
Project Description: Feeder 1113 out of South Street substation in Providence is one of eight feeders supplying the downtown Providence AC network. This project covers expenditures necessary to replace aged paper-lead cable in a limited area of the feeder as part of the underground cable replacement initiative.	

Project Status: <u>Closed</u>	
Responsible Person: <u>CURLEY, JOSEPH</u>	Initiator: <u>Holden, Eric H</u>
Spending Rationale: <u>Asset Condition</u>	Funding Type: <u>P Electric Distribution Line RI</u>
Budget Class: <u>Asset Replacement</u>	
Capital by Category:	
Program Code:	
Project Risk Score: <u>36</u>	Project Complexity Score: <u>14</u>

Project Schedule / Expenditures

Revision Status: <u>Approved</u>					
Est Start Date: <u>9/19/2012</u>		Est Complete Date: <u>9/12/2014</u>			
Est In-Service Date: <u>9/12/2014</u>					
TTD Actuals: <u>\$299,985</u>		As Of: <u>10/2/2017</u>			
Cost Breakdown	<u>Capital</u>	<u>Expense</u>	<u>Removal</u>	<u>Total</u>	<u>Credits</u>
	<u>\$195,200</u>	<u>\$70,400</u>	<u>\$54,400</u>	<u>\$320,000</u>	<u>\$0</u>

Justification / Risk Identification:

This project proactively replaces aged PILC underground cable as part of the underground cable asset replacement strategy. Scope of replacements includes aged cable (75 years and older) as well as that which is necessary to effect the required transition splicing from solid dielectric cable to existing paper-lead cable.

Project Scope:

Install 2850 ckt ft of 4/0 Cu 15 kV CN cable and miscellaneous underground equipment.
 Remove various PILC cable: 1970 ft of 3/C-1/0 Cu, 350 ft of 3/C-4/0 Cu, 320 ckt ft of 1/C-4/0 Cu, and 75 ckt ft of 1/C-1/0 Cu.

Project Alternatives Considered:

CL 5/22/13 - Est rev 1 - \$30K for eng/design. Conceptual estimate \$390K (340K capital, 10K O&M, 40K removal).

Additional Notes:

Resanction from \$245K to \$320K from Julie Spaziano. Document attached details on the justification and scope tab. Civil was not included on the original estimate for 45K. In addition, there were outages required in order to complete this project which had to be done on off hours resulting in an additional 30K in Labor and Labor overheads bringing the total project cost to 320K.

Estimated cost for this project is \$320K (340K capital, 10K O&M, 40K removal).

Related Projects:

Project Number:

Project Name:

Approvals

Line 1:	Date <u>12/2/2014 09:36:08</u>	Approver <u>mokeym</u>	<u>DOA - Distribution Lev</u>
Line 2:	Date <u>12/11/2014 15:00:23</u>	Approver <u>Diconza, Glen L</u>	<u>DOA - Distribution Lev</u>
Line 3:	Date <u>1/5/2015 09:38:26</u>	Approver <u>Constable, Ryan</u>	<u>DOA - Distribution Lev</u>
Line 4:	Date <u>1/6/2015 07:33:01</u>	Approver <u>Pendrake, Robert C</u>	<u>DOA - Distribution Lev</u>
Line 5:	Date <u>1/28/2015 12:34:08</u>	Approver <u>LaBarre, Alan T</u>	<u>DOA - Distribution Lev</u>

*****Project Authorization is for Approved Revision Total Estimated Cost +10%*****

REDACTED - CEII Information has been Redacted

PowerPlan ----- PPGPRD Database

File Edit Subsystem Batch Admin Preferences Window Help

Projects Assets Tables CR MyPPlan Help Calc Print Win

Funding Project Estimates - Summary C046405 Current Total Authorized Amount: \$320,...

Title

Project Number

Budget Version	Default (active)
Revision	<input type="text"/>
Revision Status	Approved
Revision No.	<input type="text" value="4"/>
Est Start Date	09/19/2012
Est Complete Date	09/12/2014
Est In Srvc Date	09/12/2014
Capital	\$195,200.00
Expense	\$70,400.00
Jobbing	\$0.00
Retirement	\$0.00
Removal	\$54,400.00
Total (excl. Ret.)	\$320,000.00
Credits	\$0.00
Net	\$320,000.00

Revision Info **Other Updates**

Revision of 4

[Find Revision](#)

Show 'Budget Only' Revisions

Spending Estimates:

Property Estimates:

Edit:

Other:

Record of 2

Change in DOA Request Form (Less than Million)

Version 9.0

Note: Fill data in the grey area and email form to **Mario Carlino** and the appropriate IP analyst.

Gas - Tracy Nguyen
Electric - Janice Flynn

* Date:	11/24/2014
* Operating Company:	The Narragansett Electric Co.
* PowerPlant Project Id:	C046405
* Project Name:	Fdr 1113 Inst Cable Fountain St Prov
* Project Engineer:	John Castro
* Project Manager:	Joe Curley

Latest Project Estimate

* Date of Latest Sanction:	7/15/2014
----------------------------	-----------

Total	Capex	Opex	Removal
\$245,000	\$149,450	\$53,900	\$41,650

Revised Project Estimate

Total	Capex	Opex	Removal
\$320,000	\$195,200	\$70,400	\$54,400

Cash Flows

Previous FY	Capex	Opex	Removal
\$0			

Current FY	Capex	Opex	Removal
\$320,000	\$195,200	\$70,400	\$54,400

FY+1	Capex	Opex	Removal
\$0			

FY+2	Capex	Opex	Removal
\$0			

Customer Contribution	

Reason for Revision

<input type="checkbox"/>	Revised forecast either exceeds or is lower than the Approved Amount - Project Still In Process
	New Project Estimated Completion Date: <input type="text"/>

<input checked="" type="checkbox"/>	Actual Spending either exceeds or is lower than the Approved Amount – Project is Complete
-------------------------------------	---

Reason for Increased Spending (Please expand the row height if box doesn't fit)

<input type="checkbox"/>	Change in Scope (Material, Labor or Other)
--------------------------	--

Change in DOA Request Form (Less than Million)

<input type="checkbox"/>	Resource Allocation (Schedule, Delay, OT, or Contractor) [Redacted]
<input checked="" type="checkbox"/>	Low/High Estimate Civil was not included on the original estimate for 45K. In addition, there were outages required in order to complete this project which had to be done on off hours resulting in an additional 30K in Labor and Labor overheads bringing the total project cost to 320K.
<input type="checkbox"/>	External Forces (Permitting Requirements, Weather, Contractor Issues, etc) [Redacted]

In-service Dates

*Original In-service Date:
 *Revised In-service Date:

C046406

Fdr 1109B Inst Cable Pine St & west

5360-Narragansett Electric and Gas Project Revision Detail Report

Fund Project Number: <u>C046406</u>	USSC #:
Revision: <u>5</u>	Budget Version: <u>Default</u>
Project Title: <u>Fdr 1109B Inst Cable Pine St & west</u>	
Project Description: Feeder 1109 out of Dyer Street substation in Providence is one of eight feeders supplying the downtown Providence AC network. This project covers expenditures necessary to replace aged paper-lead cable in a limited area on the "B" portion of the feeder as part of the underground cable replacement initiative.	

Project Status: <u>open</u>	
Responsible Person: <u>MOKEY, MICHAEL</u>	Initiator: <u>Holden, Eric H</u>
Spending Rationale: <u>Asset Condition</u>	Funding Type: <u>P Electric Distribution Line RI</u>
Budget Class: <u>Asset Replacement</u>	
Capital by Category:	
Program Code:	
Project Risk Score: <u>36</u>	Project Complexity Score: <u>14</u>

Project Schedule / Expenditures

Revision Status: <u>Approved</u>					
Est Start Date: <u>9/19/2012</u>		Est Complete Date: <u>3/31/2015</u>			
Est In-Service Date: <u>3/31/2014</u>					
TTD Actuals: <u>\$380,860</u>		As Of: <u>10/3/2017</u>			
Cost Breakdown	<u>Capital</u>	<u>Expense</u>	<u>Removal</u>	<u>Total</u>	<u>Credits</u>
	<u>\$256,500</u>	<u>\$108,000</u>	<u>\$85,500</u>	<u>\$450,000</u>	<u>\$0</u>

Justification / Risk Identification:

This project proactively replaces aged PILC underground cable as part of the underground cable asset replacement strategy. Scope of replacements includes aged cable (75 years and older) as well as that which is necessary to effect the required transition splicing from solid dielectric cable to existing paper-lead cable.

Project Scope:

Install 5100 ckt ft of 4/0 Cu 15 kV CN cable and miscellaneous underground equipment.
 Remove various PILC cable: 1275 ft of 3/C-500 kcmil Cu, 480 ft of 3/C-450 kcmil Cu, 1340 ft of 3/C-350 kcmil Cu, 680 ft of 3-1/C-4/0 Cu, 750 ft of 3/C-1/0 Cu, 195 ft of 3-1/C-1/0 Cu, and miscellaneous underground equipment.

Project Alternatives Considered:

REDACTED - CEII Information has been Redacted

PowerPlan ----- PPGPRD Database

File Edit Subsystem Batch Admin Preferences Window Help

Projects Assets Tables CR MyPPlan Help Calc Print Win

Funding Project Estimates - Summary C046406 Current Total Authorized Amount: \$450,000.00

Title: Fdr 1109B Inst Cable Pine St & west
 Project Number: C046406

Budget Version	Default (active)
Revision	SN Form
Revision Status	Approved
Revision No.	5
Est Start Date	09/19/2012
Est Complete Date	03/31/2015
Est In Srvc Date	03/31/2014
Capital	\$256,500.00
Expense	\$108,000.00
Jobbing	\$0.00
Retirement	\$0.00
Removal	\$85,500.00
Total (excl. Rets.)	\$450,000.00
Credits	\$0.00
Net	\$450,000.00

Revision Info: Other Updates

Revision: 5 of 5 [K] [<] [>] [>I]
[Find Revision](#) [Send for Approval]

Show 'Budget Only' Revisions

Spending Estimates:
 Grid Estimates
 Forecast
 Summarize from W/O
 Copy Estimate

Property Estimates:
 Unit Estimates
 Create As Built
 Delete Used Estimates

Edit:
 New Revision
 Delete Revision
 Update
 Update With Actuals
 Import Estimates

Other:
 Revision Comments
 Released Dollars
 Substitution
 Slide

Version Compare [Close]

Record 1 of 1 [K] [<] [>] [>I]

Audits

Project Re-Sanction Request

Version 8.3

Note: Fill data in the grey area and email form to **Mario Carlino** and the appropriate IP analyst.

Gas - Tracy Nguyen

Distribution - Janice Flynn

Transmission - Matt Roby

* Date:	2/18/2014
* Operating Company:	The Narragansett Electric Co.
* PowerPlant Project Id:	C046406
* Project Name:	Fdr 1109B Inst Cable Pine St & west
Project Engineer:	John Castro
Project Manager:	Mike Mokey

Original Project Estimate

* Date of Original Sanction:	6/11/2013
------------------------------	-----------

Total	Capex	Opex	Removal
\$30,000	\$30,000	\$0	\$0

Revised Project Estimate

Total	Capex	Opex	Removal
\$450,000	\$256,500	\$108,000	\$85,500

Cash Flows

Previous FY	Capex	Opex	Removal
\$0			

Current FY	Capex	Opex	Removal
\$450,000	\$256,500	\$108,000	\$85,500

FY+1	Capex	Opex	Removal
\$0			

FY+2	Capex	Opex	Removal
\$0			

Customer Contribution

--

Reason for Revision

<input checked="" type="checkbox"/>	Revised forecast either exceeds or is lower than the Approved Amount - Project Still In Process
	New Project Estimated Completion Date: 3/26/2014

<input type="checkbox"/>	Actual Spending either exceeds or is lower than the Approved Amount – Project is Complete
--------------------------	---

Reason for Increased Spending (Please expand the row height if box doesn't fit)

<input checked="" type="checkbox"/>	Change in Scope (Material, Labor or Other)
-------------------------------------	--

Project Re-Sanction Request

	Install 5100 ckt ft of 4/0 Cu 15 kV CN cable and miscellaneous underground equipment. Remove various PILC cable: 1275 ft of 3/C-500 kcmil Cu, 480 ft of 3/C-450 kcmil Cu, 1340 ft of 3/C-350 kcmil Cu, 680 ft of 3-1/C-4/0 Cu, 750 ft of 3/C-1/0 Cu, 195 ft of 3-1/C-1/0 Cu, and miscellaneous underground equipment.
<input type="checkbox"/>	Resource Allocation (Schedule, Delay, OT, or Contractor)
<input checked="" type="checkbox"/>	Low/High Estimate This project was approved for 30K in June, 2013 for Pre-engineering costs. Based on the design it has been determined that the job will cost 450K for the total project including construction. The following is a breakdown of costs for the project, 220K for Labor and Labor Overheads including Engineering & Design, 180K for Materials and Material Overheads, 20K for transportation and 30k for Police Protection bringing the total project cost to 450K.
<input type="checkbox"/>	External Forces (Permitting Requirements, Weather, Contractor Issues, etc)

In-service Dates

*Original In-service Date:
 *Revised In-service Date:

C046506

Tunk Hill Road, Scituate RI, Storm

5360-Narragansett Electric and Gas Project Revision Detail Report

Fund Project Number: <u>C046506</u>	USSC #: <u>USSC-13-182C</u>
Revision: <u>3</u>	Budget Version: <u>Default</u>
Project Title: <u>Tunk Hill Road, Scituate RI, Storm</u>	
Project Description: Reconductor 10,300 feet of 1/0 Al with 477 spacer cable from pole 21 Hope Furnace Road to pole 87 Tunk Hill Road in Scituate, RI. Also perform tree trimming along the entire stretch of Tunk Hill Rd (from pole 18 Hope Furnace Rd to po	

Project Status: <u>Closed</u>	
Responsible Person: <u>CURLEY, JOSEPH</u>	Initiator: <u>Holden, Eric H</u>
Spending Rationale: <u>System Capacity & Performance</u>	Funding Type: <u>P Electric Distribution Line RI</u>
Budget Class: <u>Reliability</u>	
Capital by Category:	
Program Code:	
Project Risk Score: <u>30</u>	Project Complexity Score: <u>16</u>

Project Schedule / Expenditures

Revision Status: <u>Approved</u>					
Est Start Date: <u>6/21/2012</u>			Est Complete Date: <u>3/31/2015</u>		
Est In-Service Date: <u>6/1/2014</u>					
TTD Actuals: <u>\$1,570,456</u>			As Of: <u>10/3/2017</u>		
Cost Breakdown	<u>Capital</u>	<u>Expense</u>	<u>Removal</u>	<u>Total</u>	<u>Credits</u>
	<u>\$1,376,000</u>	<u>\$142,000</u>	<u>\$53,000</u>	<u>\$1,571,000</u>	<u>\$0</u>

Justification / Risk Identification:

This job was identified as work to be done under the Pockets of Poor Performance Strategy. Between 2006 and 2008, there were nine tree related mainline outages that occurred on this road. This work will tree trim the all of Tunk Hill Rd and will also reconductor a section of this road with 477 spacer cable.

Project Scope:

Reconductor 10,300 feet of 1/0 Al with 477 spacer cable from pole 21 Hope Furnace Road to pole 87 Tunk Hill Road in Scituate, RI. Also perform tree trimming along the entire stretch of Tunk Hill Rd (from pole 18 Hope Furnace Rd to pole 274 Plainfield Pike in Scituate) Preliminary Engineering.

Project Alternatives Considered:

<Enter data here>

Additional Notes:

scope is updated/increased due to storm hardening/CEMI program

Related Projects:

Project Number:

Project Name:

Approvals

Line 1:	Date	<u>8/31/2016 12:13:46</u>	Approver	<u>carlim</u>	<u>USSC Approver</u>
Line 2:	Date		Approver		
Line 3:	Date		Approver		
Line 4:	Date		Approver		
Line 5:	Date		Approver		

*****Project Authorization is for Approved Revision Total Estimated Cost +10%*****

REDACTED - CEII Information has been Redacted

PowerPlan ----- PPGPRD Database

File Edit Subsystem Batch Admin Preferences Window Help

Projects Assets Tables CR MyPPlan Help Calc Print Win

Funding Project Estimates - Summary C046506 Current Total Authorized Amount: \$1,57...

Title
Project Number

Budget Version	Default (active)
Revision	Closure
Revision Status	Approved
Revision No.	<input type="text" value="3"/>
Est Start Date	06/21/2012
Est Complete Date	06/02/2014
Est In Srvc Date	06/01/2014
Capital	\$1,376,000.00
Expense	\$142,000.00
Jobbing	\$0.00
Retirement	\$0.00
Removal	\$53,000.00
Total (excl. Ret.)	\$1,571,000.00
Credits	\$0.00
Net	\$1,571,000.00

Revision Info

Revision of 3

[Find Revision](#)

Show 'Budget Only' Revisions

Spending Estimates:

Property Estimates:

Edit:

Other:

Record of 1



USSC Closure Paper

Title:	Tunk Hill Road; Scituate, RI, Storm Closure	Sanction Paper #:	USSC-13-182C
Project #:	C046506	Sanction Type:	Closure
Operating Company:	The Narragansett Electric Co.	Date of Request:	08/23/2016
Author:	Joe Curley	Sponsor:	Carol Sedewitz, VP Electric Asset Management
Utility Service:	Electricity T&D	Project Manager:	Joe Curley

1 Executive Summary

This paper is presented to close C046506. The total spend was \$1.571M. The latest sanctioned amount for this project was \$1.850M.

The final spend amount is \$1.571M broken down into:

- \$1.376M Capex
- \$0.142M Opex
- \$0.053M Removal

2 Project Summary

This paper is provided for closure for project C046506. Funding was provided for reconductoring a two mile section of the open wire primary with spacer cable from pole 21 Hope Furnace Road to pole 87 Tunk Hill Road. This project also recommended enhance tree trimming along the entire length of Tunk Hill Road from pole 18 Hope Furnace Road to pole 274 Plainville Pine in Scituate, RI. Over the past ten years, this feeder had a significant number of mainline events, particularly in the section along Tunk Hill Road in Scituate. Most of these outages were caused by trees contacting the open wire primary.



USSC Closure Paper

3 Over / Under Expenditure Analysis

3.1 Summary Table

Actual Spending (\$M)			
Project #	Description		Total Spend
C046506	Tunk Hill Road, Scituate RI, Storm	Capex	1.376
		Opex	0.142
		Removal	0.053
		Total	1.571
Total		Capex	1.376
		Opex	0.142
		Removal	0.053
		Total	1.571

Project Sanction Summary Table			
Project Sanction Approval (\$M)			Total Spend
		Capex	1.280
		Opex	0.070
		Removal	0.500
		Total Cost	1.850
Sanction Variance (\$M)			Total Spend
		Capex	(0.096)
		Opex	(0.072)
		Removal	0.447
		Total Variance	0.279

3.2 Analysis

N/A

4 Improvements / Lessons Learned

This project experienced delays as a result of meetings with the town- specifically their fire chief. The municipality required a more detailed traffic plan, as a result of a DOT project that did not require National Grid's participation. The concern with both of these projects taking place at the same time resulted in several meetings with the town and RIDOT to ensure a safe traffic pattern was in place. Some additional delays took place while setting poles due to ledge, which required specialized equipment to complete the work.



USSC Closure Paper

5 Closeout Activities

The following closeout activities have been completed.

Activity	Completed
All work has been completed in accordance with all National Grid policies	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All work orders and funding projects have been closed	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All as-builts have been completed	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All lessons learned have been entered appropriately into the lesson learned database	<input checked="" type="radio"/> Yes <input type="radio"/> N/A



USSC Closure Paper

6 Statements of Support

6.1 *Supporters*

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Investment Planning	Glen DiConza	Endorses relative to 5-year business plan or emergent work
Resource Planning	Anne Wyman	Endorses construction resources, cost estimate, schedule, and portfolio alignment
Distribution Asset Management	Alan Labarre	Endorses scope, estimate, and schedule with the company's goals, strategies, and objectives

6.2 *Reviewers*

The reviewers have provided feedback on the content/language of the paper.

Function	Individual
Finance	Patricia Easterly
Regulatory	Peter Zschokke
Jurisdictional Delegates	Jim Patterson
Procurement	Art Curran



USSC Closure Paper

7 Decisions

I approve this paper.

Signature..... *CK Kelly*Date..... *8/29/16*

Executive Sponsor -- Christopher Kelly,
Acting Senior Vice President – Electric Process & Engineering

C046697

Hope Substation Flood Restoration

5360-Narragansett Electric and Gas Project Revision Detail Report

Fund Project Number: C046697 **USSC #:**

Revision: 1 **Budget Version:** Default

Project Title: Hope Substation Flood Restoration

Project Description: To mitigate potential flood damage to Hope substation equipment it is recommended to elevate the substation equipment at risk. Refer to the attached Conceptual Engineering Report dated 10/4/12 for scope of this work.

Project Status: suspended

Responsible Person: PHILLIPS, MARK **Initiator:** Holden, Eric H

Spending Rationale: Asset Condition **Funding Type:** P Electric Distribution Sub RI

Budget Class: Asset Replacement

Capital by Category:

Program Code:

Project Risk Score: 31 **Project Complexity Score:** 14

Project Schedule / Expenditures

Revision Status: Approved

Est Start Date: 8/23/2011 **Est Complete Date:** 3/31/2015

Est In-Service Date: 3/21/2014

TTD Actuals: \$304,875 **As Of:** 10/3/2017

Cost Breakdown	<u>Capital</u>	<u>Expense</u>	<u>Removal</u>	<u>Total</u>	<u>Credits</u>
	<u>\$350,000</u>	<u>\$25,000</u>	<u>\$35,000</u>	<u>\$410,000</u>	<u>\$0</u>

Justification / Risk Identification:

See attachment for detailed description of flooding damage at substation.

Project Scope:

Between March 30 and April 1, 2010, Rhode Island was impacted by flooding, with water levels reaching a peak level of about 28 inches above grade at this substation. Hope Substation is a 23 -12.47kV substation with two 22.9-12.47kV, 7.5/9.4 MVA transformers, which supply two 12.47kV feeders. Inside the control building, flood waters reached a peak level of 21 inches, which partially submerged the station battery and several relays.

The existing base flood elevation for the area is approximately 100, and the existing grade of the substation is

Project Alternatives Considered:

No economical alternative exists to this work.

Additional Notes:

<Enter data here>

Related Projects:

Project Number:

Project Name:

Approvals

Line 1:	Date	<u>12/31/2012 12:49:49</u>	Approver	<u>sherir</u>	<u>Approver 1</u>
Line 2:	Date		Approver		
Line 3:	Date		Approver		
Line 4:	Date		Approver		
Line 5:	Date		Approver		

*****Project Authorization is for Approved Revision Total Estimated Cost +10%*****

REDACTED - CEII Information has been Redacted

PowerPlan ----- PPGPRD Database

File Edit Subsystem Batch Admin Preferences Window Help

Projects Assets Tables CR MyPPlan Help Calc Print Win

Funding Project Estimates - Summary C046697 Current Total Authorized Amount: \$410,...

Title: Hope Substation Flood Restoration
Project Number: C046697

Budget Version	Default (active)
Revision	
Revision Status	Approved
Revision No.	1
Est Start Date	08/23/2011
Est Complete Date	03/31/2014
Est In Srvc Date	03/21/2014
Capital	\$350,000.00
Expense	\$25,000.00
Jobbing	\$0.00
Retirement	\$0.00
Removal	\$35,000.00
Total (excl. Rets.)	\$410,000.00
Credits	\$0.00
Net	\$410,000.00

Revision Info: **Other Updates**

Revision: 1 of 2 [K] [<] [>] [|]
[Find Revision](#) [Send for Approval]

Show 'Budget Only' Revisions

Spending Estimates:

Grid Estimates
Forecast
Summarize from WO
Copy Estimate

Property Estimates:

Unit Estimates
Create As Built
Delete Used Estimates

Edit:

New Revision
Delete Revision
Update
Update With Actuals
Import Estimates

Other:

Revision Comments
Released Dollars
Substitution
Slide

Version Compare
Close

Record 1 of 1 [K] [<] [>] [|]

Audits

C046831

CLARKE 65J12 Feeder Upgrade (D-Sub)

5360-Narragansett Electric and Gas Project Revision Detail Report

Fund Project Number: <u>C046831</u>	USSC #: <u>USSC-12-085 v4C</u>
Revision: <u>8</u>	Budget Version:
Project Title: <u>CLARKE 65J12 Feeder Upgrade (D-Sub)</u>	
Project Description: Upgrade 65J12 feeder utilizing a MITS design with a 3.75/4.68 MVA transformer	

Project Status: <u>Closed</u>	
Responsible Person: <u>ARTHUR, DAVID</u>	Initiator: <u>Holden, Eric H</u>
Spending Rationale: <u>System Capacity & Performance</u>	Funding Type: <u>P Electric Distribution Sub RI</u>
Budget Class: <u>Load Relief</u>	
Capital by Category:	
Program Code:	
Project Risk Score: <u>37</u>	Project Complexity Score: <u>22</u>

Project Schedule / Expenditures

Revision Status: <u>Approved</u>					
Est Start Date: <u>3/18/2011</u>				Est Complete Date: <u>6/30/2016</u>	
Est In-Service Date: <u>2/28/2016</u>					
TTD Actuals: <u>\$2,224,666</u>				As Of: <u>10/3/2017</u>	
Cost Breakdown	<u>Capital</u>	<u>Expense</u>	<u>Removal</u>	<u>Total</u>	<u>Credits</u>
	<u>\$2,173,000</u>	<u>\$15,000</u>	<u>\$38,000</u>	<u>\$2,226,000</u>	<u>\$0</u>

Justification / Risk Identification:

Clarke Street substation is a 23/4.16kV station with two modular feeders and supplies the southern half of the Island of Jamestown. This station is highly utilized and the following loading concerns need to be addressed:

- 1) The 65J12 Feeder is projected to be loaded above SN ratings in 2012 (103% of SN).
- 2) The 65J2 Feeder is projected to be loaded above SN ratings in 2013 (102% of SN).

Project Scope:

PLAN 1 - RECOMMENDED Plan. Upgrade 65J12 feeder utilizing a MITS design with a 3.75/4.68 MVA transformer. All feeder equipment has to be replaced because both the existing transformer & breaker are attached to a common metal-clad structure and cannot be split apart. This plan, along with the associated D-Line project, will resolve all loading concerns at Clarke Street substation. Refer to attached Scope of Work document.

Project Alternatives Considered:

PLAN 2 - NOT Recommended. Install a MITS modular feeder in southern Jamestown. Company would need to purchase land to house this MITS. The estimated cost of this Plan is \$2.9M of which \$1M is assumed for the cost of land. A suitable parcel of land in Southern Jamestown to house this MITS is expected to be extremely difficult to located and the cost could much higher than the assumed \$1M. This plan is substantially more expensive and higher risk than the preferred plan.

Additional Notes:

<Enter data here>

Related Projects:

Project Number:

Project Name:

Approvals

Line 1:	Date <u>2/23/2017 14:29:21</u>	Approver <u>carlim</u>	<u>USSC Approver</u>
Line 2:	Date	Approver	
Line 3:	Date	Approver	
Line 4:	Date	Approver	
Line 5:	Date	Approver	

*****Project Authorization is for Approved Revision Total Estimated Cost +10%*****

REDACTED - CEII Information has been Redacted

PowerPlan ----- PPGPRD Database

File Edit Subsystem Batch Admin Preferences Window Help

Projects Assets Tables CR MyPPlan Help Calc Print Win

Funding Project Estimates - Summary C046831 Current Total Authorized Amount: \$2,22...

Title: CLARKE 65J12 Feeder Upgrade (D-Sub)
Project Number: C046831

Budget Version	No Assigned Versions
Revision	Closure
Revision Status	Approved
Revision No.	8
Est Start Date	03/18/2011
Est Complete Date	06/30/2016
Est In Srvc Date	02/28/2016
Capital	\$2,173,000.00
Expense	\$15,000.00
Jobbing	\$0.00
Retirement	\$0.00
Removal	\$38,000.00
Total (excl. Rets.)	\$2,226,000.00
Credits	\$0.00
Net	\$2,226,000.00

Revision Info: Other Updates

Revision: 8 of 8
[Find Revision](#) Send for Approval

Show 'Budget Only' Revisions

Spending Estimates:

Grid Estimates
Forecast
Summarize from WO
Copy Estimate

Property Estimates:

Unit Estimates
Create As Built
Delete Used Estimates

Edit:

New Revision
Delete Revision
Update
Update With Actuals
Import Estimates

Other:

Revision Comments
Released Dollars
Substitution
Slide

Version Compare Close

Record 1 of 1
Audits



USSC Closure Paper

Title:	Clarke St 65J12 Feeder Upgrade	Sanction Paper #:	USSC-12-085 v5C
Project #:	C046831, C046832	Sanction Type:	Closure
Operating Company:	The Narragansett Electric Co.	Date of Request:	2/14/17
Author:	David P. Arthur	Sponsor:	Carol Sedewitz, Vice President, Electric Asset Management
Utility Service:	Electricity T&D	Project Manager:	David P. Arthur

1 Executive Summary

This paper is presented to close C046831 and C046832. The total spend was \$2.725M. The latest sanctioned amount for this project was \$2.894M with a tolerance of +/-10%.

The final spend amount is \$2.725M broken down into:

- \$2.598 Capex*
- \$0.038 Opex*
- \$0.089 Removal*

2 Project Summary

This project was required to address reliability concerns on the Island of Jamestown. The concerns addressed in this area were, that the two Clarke Street substation feeders were highly utilized and by 2014 loading on the 65J2 was projected to exceed summer normal ratings. Additionally, the Clarke Street 652 transformer, which supplied the 65J12 feeder, was on the Highly Utilized Transformer list for approximately ten years and had deteriorated transformer insulation. Also, there were signs of oil leaks inside the transformer compartment. Lastly, the 65J12 breaker was recommended for replacement due to asset condition concerns.

To resolve these concerns the recommended plan was to upgrade the Clarke Street 65J12 feeder, transformer and breaker. This investment resolved the projected overloads on Clarke Street feeders and addressed the asset condition concerns.

3 Over / Under Expenditure Analysis



USSC Closure Paper

3.1 Summary Table

Actual Spending (\$M)			
Project #	Description		Total Spend
C046831	CLARKE 65J12 Feeder Upgrade (D-Sub)	Capex	2.173
		Opex	0.015
		Removal	0.038
		Total	2.226
Project #	Description		Total Spend
C046832	CLARKE St Feeder Upgrades (D-Line)	Capex	0.425
		Opex	0.023
		Removal	0.051
		Total	0.499
Total		Capex	2.598
		Opex	0.038
		Removal	0.089
		Total	2.725

Project Sanction Summary Table			
Project Sanction Approval (\$M)			Total Spend
		Capex	2.519
		Opex	0.022
		Removal	0.098
		Total Cost	2.639
Sanction Variance (\$M)			Total Spend
		Capex	(0.079)
		Opex	(0.016)
		Removal	0.009
		Total Variance	(0.086)

3.2 Analysis

The project was completed within the allowed budget. Additional landscaping mitigation at the station was required as a result of neighborhood outreach. This increased the cost of the overall project, however the final cost is within the estimate tolerance.

4 Improvements / Lessons Learned

Ensure that project risk or estimate includes costs for landscaping improvements and EMF analysis if the station is located within a residential area.

5 Closeout Activities

The following closeout activities have been completed.



USSC Closure Paper

Activity	Completed
All work has been completed in accordance with all National Grid policies	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All work orders and funding projects have been closed	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All as-builts have been completed	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All lessons learned have been entered appropriately into the lesson learned database	<input checked="" type="radio"/> Yes <input type="radio"/> N/A

6 Statements of Support

6.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Investment Planning	Glen DiConza	Endorses relative to 5-year business plan or emergent work
Resource Planning	Anne Wyman	Endorses construction resources, cost estimate, schedule, and portfolio alignment
Resource Planning	Mark Phillips	Endorses construction resources, cost estimate, schedule, and portfolio alignment
Asset Management / Planning	Alan T. Labarre	Endorses scope, estimate, and schedule with the company's goals, strategies, and objectives
Engineering and Design	Suzan E. Martuscello	Endorses scope, design, conformance with design standards
Engineering and Design	Leonard G. Swanson	Endorses scope, design, conformance with design standards



USSC Closure Paper

Project Management	Andrew Schneller	Endorses resources, cost estimate, schedule
Electric Project Estimation	Dan Marceau	Endorses cost estimate

6.2 Reviewers

The reviewers have provided feedback on the content/language of the paper.

Function	Individual
Finance	Richard Helm
Finance	Mark Collison
Regulatory	Peter Zschokke
Jurisdictional Delegate	Jim Patterson

USSC Closure Paper



7 Decisions

I approve this paper.	
Signature..... 	Date..... 
Chris Kelly, Senior Vice President, Electric Process & Engineering	

C046832

CLARKE St Feeder Upgrades (D-Line)

5360-Narragansett Electric and Gas Project Revision Detail Report

Fund Project Number: <u>C046832</u>	USSC #: <u>USSC-12-085 v4C</u>
Revision: <u>7</u>	Budget Version:
Project Title: <u>CLARKE St Feeder Upgrades (D-Line)</u>	
Project Description: Upgrade 65J12 feeder utilizing a MITS design with a 3.75/4.68 MVA transformer. Reinforce feeders as shown in scope document.	

Project Status: <u>Closed</u>	
Responsible Person: <u>ARTHUR, DAVID</u>	Initiator: <u>Holden, Eric H</u>
Spending Rationale: <u>System Capacity & Performance</u>	Funding Type: <u>P Electric Distribution Line R1</u>
Budget Class: <u>Load Relief</u>	
Capital by Category:	
Program Code:	
Project Risk Score: <u>37</u>	Project Complexity Score: <u>22</u>

<u>Project Schedule / Expenditures</u>					
Revision Status: <u>Approved</u>					
Est Start Date: <u>3/18/2011</u>				Est Complete Date: <u>6/1/2016</u>	
Est In-Service Date: <u>2/28/2016</u>					
TTD Actuals: <u>\$498,688</u>				As Of: <u>10/3/2017</u>	
Cost Breakdown	<u>Capital</u>	<u>Expense</u>	<u>Removal</u>	<u>Total</u>	<u>Credits</u>
	<u>\$425,000</u>	<u>\$23,000</u>	<u>\$51,000</u>	<u>\$499,000</u>	<u>\$0</u>

Justification / Risk Identification:

Clarke Street substation is a 23/4.16kV station with two modular feeders and supplies the southern half of the Island of Jamestown. This station is highly utilized and the following loading concerns need to be addressed:

- 1) The 65J12 Feeder is projected to be loaded above SN ratings in 2012 (103% of SN).
- 2) The 65J2 Feeder is projected to be loaded above SN ratings in 2013 (102% of SN).

Project Scope:

PLAN 1 - RECOMMENDED Plan. Upgrade 65J12 feeder utilizing a MITS design with a 3.75/4.68 MVA transformer. All feeder equipment has to be replaced because both the existing transformer & breaker are attached to a common metal-clad structure and cannot be split apart. This plan, along with the associated D-Sub project, will resolve all loading concerns at Clarke Street substation. Refer to attached Scope of Work document.

Project Alternatives Considered:

PLAN 2 - NOT Recommended. Install a MITS modular feeder in southern Jamestown. Company would need to purchase land to house this MITS. The estimated cost of this Plan is \$2.9M of which \$1M is assumed for the cost of land. A suitable parcel of land in Southern Jamestown to house this MITS is expected to be extremely difficult to located and the cost could much higher than the assumed \$1M. This plan is substantially more expensive and higher risk than the preferred plan.

Additional Notes:

<Enter data here>

Related Projects:

Project Number:

Project Name:

Approvals

Line 1:	Date <u>2/23/2017 14:29:23</u>	Approver <u>carlim</u>	<u>USSC Approver</u>
Line 2:	Date	Approver	
Line 3:	Date	Approver	
Line 4:	Date	Approver	
Line 5:	Date	Approver	

*****Project Authorization is for Approved Revision Total Estimated Cost +10%*****

REDACTED - CEII Information has been Redacted

PowerPlan ----- PPGPRD Database

File Edit Subsystem Batch Admin Preferences Window Help

Projects Assets Tables CR MyPlan Help Calc Print Win

Funding Project Estimates - Summary C046832 Current Total Authorized Amount: \$499,...

Title: CLARKE St Feeder Upgrades (D-Line)
 Project Number: C046832

Budget Version Default (active)
 Revision: v4
 Revision Status: Approved
 Revision No.: 6
 Est Start Date: 03/18/2011
 Est Complete Date: 06/01/2016
 Est In Srvc Date: 02/28/2016
 Capital: \$491,000.00
 Expense: \$23,000.00
 Jobbing: \$0.00
 Retirement: \$0.00
 Removal: \$38,000.00
 Total (excl. Rets.): \$552,000.00
 Credits: \$0.00
 Net: \$552,000.00

Spending Estimates:
 Grid Estimates
 Forecast
 Summarize from WO
 Copy Estimate

Property Estimates:
 Unit Estimates
 Create As Built
 Delete Used Estimates

Edit:
 New Revision
 Delete Revision
 Update
 Update With Actuals
 Import Estimates

Other:
 Revision Comments
 Released Dollars
 Substitution
 Slide

Version Compare **Close**

Revision Info Other Updates
 Revision: 6 of 7
 Find Revision
 Send for Approval

Record 1 of 1
 Audits

Show 'Budget Only' Revisions



USSC Closure Paper

Title:	Clarke St 65J12 Feeder Upgrade	Sanction Paper #:	USSC-12-085 v5C
Project #:	C046831, C046832	Sanction Type:	Closure
Operating Company:	The Narragansett Electric Co.	Date of Request:	2/14/17
Author:	David P. Arthur	Sponsor:	Carol Sedewitz, Vice President, Electric Asset Management
Utility Service:	Electricity T&D	Project Manager:	David P. Arthur

1 Executive Summary

This paper is presented to close C046831 and C046832. The total spend was \$2.725M. The latest sanctioned amount for this project was \$2.894M with a tolerance of +/-10%.

The final spend amount is \$2.725M broken down into:

- \$2.598 Capex*
- \$0.038 Opex*
- \$0.089 Removal*

2 Project Summary

This project was required to address reliability concerns on the Island of Jamestown. The concerns addressed in this area were, that the two Clarke Street substation feeders were highly utilized and by 2014 loading on the 65J2 was projected to exceed summer normal ratings. Additionally, the Clarke Street 652 transformer, which supplied the 65J12 feeder, was on the Highly Utilized Transformer list for approximately ten years and had deteriorated transformer insulation. Also, there were signs of oil leaks inside the transformer compartment. Lastly, the 65J12 breaker was recommended for replacement due to asset condition concerns.

To resolve these concerns the recommended plan was to upgrade the Clarke Street 65J12 feeder, transformer and breaker. This investment resolved the projected overloads on Clarke Street feeders and addressed the asset condition concerns.

3 Over / Under Expenditure Analysis



USSC Closure Paper

3.1 Summary Table

Actual Spending (\$M)			
Project #	Description		Total Spend
C046831	CLARKE 65J12 Feeder Upgrade (D-Sub)	Capex	2.173
		Opex	0.015
		Removal	0.038
		Total	2.226
Project #	Description		Total Spend
C046832	CLARKE St Feeder Upgrades (D-Line)	Capex	0.425
		Opex	0.023
		Removal	0.051
		Total	0.499
Total		Capex	2.598
		Opex	0.038
		Removal	0.089
		Total	2.725

Project Sanction Summary Table			
Project Sanction Approval (\$M)			Total Spend
		Capex	2.519
		Opex	0.022
		Removal	0.098
		Total Cost	2.639
Sanction Variance (\$M)			Total Spend
		Capex	(0.079)
		Opex	(0.016)
		Removal	0.009
		Total Variance	(0.086)

3.2 Analysis

The project was completed within the allowed budget. Additional landscaping mitigation at the station was required as a result of neighborhood outreach. This increased the cost of the overall project, however the final cost is within the estimate tolerance.

4 Improvements / Lessons Learned

Ensure that project risk or estimate includes costs for landscaping improvements and EMF analysis if the station is located within a residential area.

5 Closeout Activities

The following closeout activities have been completed.



USSC Closure Paper

Activity	Completed
All work has been completed in accordance with all National Grid policies	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All work orders and funding projects have been closed	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All as-builts have been completed	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All lessons learned have been entered appropriately into the lesson learned database	<input checked="" type="radio"/> Yes <input type="radio"/> N/A

6 Statements of Support

6.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Investment Planning	Glen DiConza	Endorses relative to 5-year business plan or emergent work
Resource Planning	Anne Wyman	Endorses construction resources, cost estimate, schedule, and portfolio alignment
Resource Planning	Mark Phillips	Endorses construction resources, cost estimate, schedule, and portfolio alignment
Asset Management / Planning	Alan T. Labarre	Endorses scope, estimate, and schedule with the company's goals, strategies, and objectives
Engineering and Design	Suzan E. Martuscello	Endorses scope, design, conformance with design standards
Engineering and Design	Leonard G. Swanson	Endorses scope, design, conformance with design standards



USSC Closure Paper

Project Management	Andrew Schneller	Endorses resources, cost estimate, schedule
Electric Project Estimation	Dan Marceau	Endorses cost estimate

6.2 Reviewers

The reviewers have provided feedback on the content/language of the paper.

Function	Individual
Finance	Richard Helm
Finance	Mark Collison
Regulatory	Peter Zschokke
Jurisdictional Delegate	Jim Patterson

USSC Closure Paper



7 Decisions

I approve this paper.	
Signature..... 	Date..... 
Chris Kelly, Senior Vice President, Electric Process & Engineering	

C047377

IRURD Wethersfield Commons

5360-Narragansett Electric and Gas Project Revision Detail Report

Fund Project Number: <u>C047377</u>	USSC #: <u>USSC-16-150</u>
Revision: <u>3</u>	Budget Version: <u>Default</u>
Project Title: <u>IRURD Wethersfield Commons</u>	
Project Description: Replace 6000' of three-phase URD cable supplying three-phase load off P.20 and P.21 Spooner Ave in Warwick, RI.	

Project Status: <u>open</u>	
Responsible Person: <u>RICHARD, JOHN</u>	Initiator: <u>Cerulli III, John</u>
Spending Rationale: <u>Asset Condition</u>	Funding Type: <u>P Electric Distribution Line RI</u>
Budget Class: <u>Asset Replacement</u>	
Capital by Category:	
Program Code:	
Project Risk Score: <u>36</u>	Project Complexity Score: <u>17</u>

Project Schedule / Expenditures

Revision Status: <u>Approved</u>					
Est Start Date: <u>4/1/2013</u>			Est Complete Date: <u>1/31/2019</u>		
Est In-Service Date: <u>11/30/2018</u>					
TTD Actuals: <u>\$1,227,151</u>			As Of: <u>10/3/2017</u>		
Cost Breakdown	<u>Capital</u>	<u>Expense</u>	<u>Removal</u>	<u>Total</u>	<u>Credits</u>
	<u>\$1,624,000</u>	<u>\$163,000</u>	<u>\$76,000</u>	<u>\$1,863,000</u>	<u>\$0</u>

Justification / Risk Identification:
 This URD has experienced five URD cable related outages in three years and meets the criteria for the URD/UCD cable strategy.

Project Scope:
 This project replaces the older portion of the URD where the known faults have occurred including 6,000' of three-phase URD supplying three-phase load.

Project Alternatives Considered:

Injection was considered but rejected for higher cost (\$660,000) and greater risk.

Additional Notes:

<Enter data here>

Related Projects:

Project Number:

Project Name:

Approvals

Line 1:	Date	<u>4/1/2016 08:00:52</u>	Approver	<u>carlim</u>	<u>USSC Approver</u>
Line 2:	Date		Approver		
Line 3:	Date		Approver		
Line 4:	Date		Approver		
Line 5:	Date		Approver		

*****Project Authorization is for Approved Revision Total Estimated Cost +10%*****

REDACTED - CEII Information has been Redacted

PowerPlan ----- PPGPRD Database

File Edit Subsystem Batch Admin Preferences Window Help

Projects Assets Tables CR MyPPlan Help Calc Print Win

Funding Project Estimates - Summary C047377 Current Total Authorized Amount: \$1,86...

Title: IRURD Wethersfield Commons
Project Number: C047377

Budget Version	Default (active)
Revision	16-150
Revision Status	Approved
Revision No.	3
Est Start Date	04/01/2013
Est Complete Date	01/31/2019
Est In Srvc Date	11/30/2018
Capital	\$1,624,000.00
Expense	\$163,000.00
Jobbing	\$0.00
Retirement	\$0.00
Removal	\$76,000.00
Total (excl. Ret.)	\$1,863,000.00
Credits	\$0.00
Net	\$1,863,000.00

Revision Info: Other Updates

Revision 3 of 3 [K] [<] [>] [>I]
[Find Revision](#) [Send for Approval]

Show 'Budget Only' Revisions

Spending Estimates:
Grid Estimates
Forecast
Summarize from W/O
Copy Estimate

Property Estimates:
Unit Estimates
Create As Built
Delete Used Estimates

Edit:
New Revision
Delete Revision
Update
Update With Actuals
Import Estimates

Other:
Revision Comments
Released Dollars
Substitution
Slide

Version Compare

Record 1 of 1 [K] [<] [>] [>I]

Audits

Close



Resanction Request

Title:	IRURD Wethersfield URD	Sanction Paper #:	USSC-16-150
Project #:	C047377	Sanction Type:	Resanction
Operating Company:	The Narragansett Electric Co.	Date of Request:	03/22/16
Author:	John P. Richard, Jr.	Sponsor:	John Gavin, VP of Electric Asset Management
Utility Service:	Electricity T&D	Project Manager:	John P. Richard, Jr.

1 Executive Summary

This paper requests the resanction of C047377 in the amount \$1.863M with a tolerance of +/- 10% for the purposes of Engineering, Procurement and full construction including underground cable replacement.

This sanction amount is \$1.863M broken down into:

- \$1.624M Capex
- \$0.163M Opex
- \$0.076M Removal

Note the originally requested sanction amount of \$0.600M

2 Resanction Details

2.1 Project Summary

Wethersfield URD in Warwick, RI has direct buried cable that experienced five cable faults within a three year period. The project will replace approximately 11,000' of direct-buried three phase URD cable. The project will be constructed in phases; Phase I will replace approximately 6,000' of three phase cable, Phase II will replace approximately 5,000' of three-phase cable.

2.2 Summary of Projects

Project Number	Project Type (Elect only)	Project Title	Estimate Amount (\$M)
C047377	D-Line	IRURD Wethersfield	1.863
Total			1.863



Resanction Request

2.3 Prior Sanctioning History

Previously approved sanctions are attached and listed below (Newest to Oldest).

Date	Governance Body	Sanctioned Amount	Potential Project Investment	Paper Title	Sanction Type	Paper Reference Number	Tolerance
01/11/13	Powerplant DOA (<1M)	\$0.600M	\$0.600M	IRURD Wethersfield	Sanction		+/-10%

Over / Under Expenditure Analysis

Summary Analysis (\$M)	Capex	Opex	Removal	Total
Resanction Amount	1.624M	0.163M	0.076M	1.863M
Latest Approval	0.531M	0.048M	0.021M	0.600M
Change*	1.093M	0.115M	0.055M	1.263M

*Change = (Re-sanction – Amount Latest Approval)

2.4 Cost Summary Table

Project Number	Project Title	Project Estimate Level (%)	Spend (\$M)	Prior Yrs	Current Planning Horizon						Total
					Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
CD47377	IRURD Wethersfield	Est Lvl (e.g. +/- 10%)	CapEx	0.830	0.050	0.000	0.744	0.000	0.000	0.000	1.624
			OpEx	0.075	0.000	0.000	0.088	0.000	0.000	0.000	0.163
			Removal	0.032	0.000	0.000	0.044	0.000	0.000	0.000	0.076
			Total	0.937	0.050	0.000	0.876	0.000	0.000	0.000	1.863
Total Project Sanction			CapEx	0.830	0.050	0.000	0.744	0.000	0.000	0.000	1.624
			OpEx	0.075	0.000	0.000	0.088	0.000	0.000	0.000	0.163
			Removal	0.032	0.000	0.000	0.044	0.000	0.000	0.000	0.076
			Total	0.937	0.050	0.000	0.876	0.000	0.000	0.000	1.863



Resanction Request

2.5 Business Plan

Business Plan Name & Period	Project included in approved Business Plan?	Over / Under Business Plan	Project Cost relative to approved Business Plan (\$)
FY17-FY21 Narragansett Electric Distribution Business Plan	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Over <input type="radio"/> Under <input checked="" type="radio"/> N/A	\$0.000M

2.6 Drivers

2.6.1 Detailed Analysis Table

The following table indicates the major key variations that account for the difference between the original sanction amount and the requested resanction amount.

Detail Analysis (M's)	Over/Under Expenditure?	Amount
Updated Project Scope Information	<input checked="" type="checkbox"/> Over <input type="checkbox"/> Under	\$0.387M
Addition of Phase II	<input checked="" type="checkbox"/> Over <input type="checkbox"/> Under	\$0.876M

2.6.2 Explanation of Key Variations

Updated Project Scope Information- The original estimate of \$0.600M was calculated in 2013 when the job was approved. The design has since been finalized, which allows the work to be estimated with more detail. The additional cost of \$0.387M is a result of having a final design to estimate the cost for construction.

Addition of Phase II

In April 2013, the scope of this project was expanded to include Phase II. Phase II will replace 5,000' of three phase direct-buried URD cable. The additional cost of \$0.876M is the anticipate cost to replace the additional 5,000'.



Resanction Request

2.7 If cost > approved Business Plan how will this be funded?

Reallocation of funds within the URD rehabilitation Program portfolio will be managed by Resource Planning to meeting jurisdictional, budgetary, statutory and regulatory requirements.

2.8 Key Milestones

Milestone	Target Date: (Month/Year)
Planning Sanction	01/2013
Start Preliminary Engineering (kick-off meeting)	03/2013
Engineering Design Complete Phase I-EDC	12/2014
Construction Start Phase I	09/2015
Project Resanction	03/2016
Construction Completed Phase I - CC	05/2016
Engineering Design Complete Phase II-EDC	12/2016
Construction Start Phase II	04/2018
Construction Completed Phase II - CC	11/2018
Project Closure	01/2019

2.9 Next Planned Sanction Review

Date (Month/Year)	Purpose of Sanction Review
January 2019	Closure Paper

3 Statements of Support

3.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Investment Planning	Glen Diconza	Endorses relative to distribution 5-year plan or emergent work
Resource Planning	Anne Wyman	Endorses Resources, cost estimate, schedule and Portfolio Alignment
Distribution Asset Management	Alan Labarre	Endorses scope, design, conformance with design standards



Resanction Request

3.2 Reviewers

The reviewers have provided feedback on the content/language of the paper

Function	Individual
Finance	Keith Fowler
Regulatory	Peter Zschokke
Jurisdictional Delegates	Jim Patterson
Procurement	Art Curran
Control Center	Mike Gallagher



Resanction Request

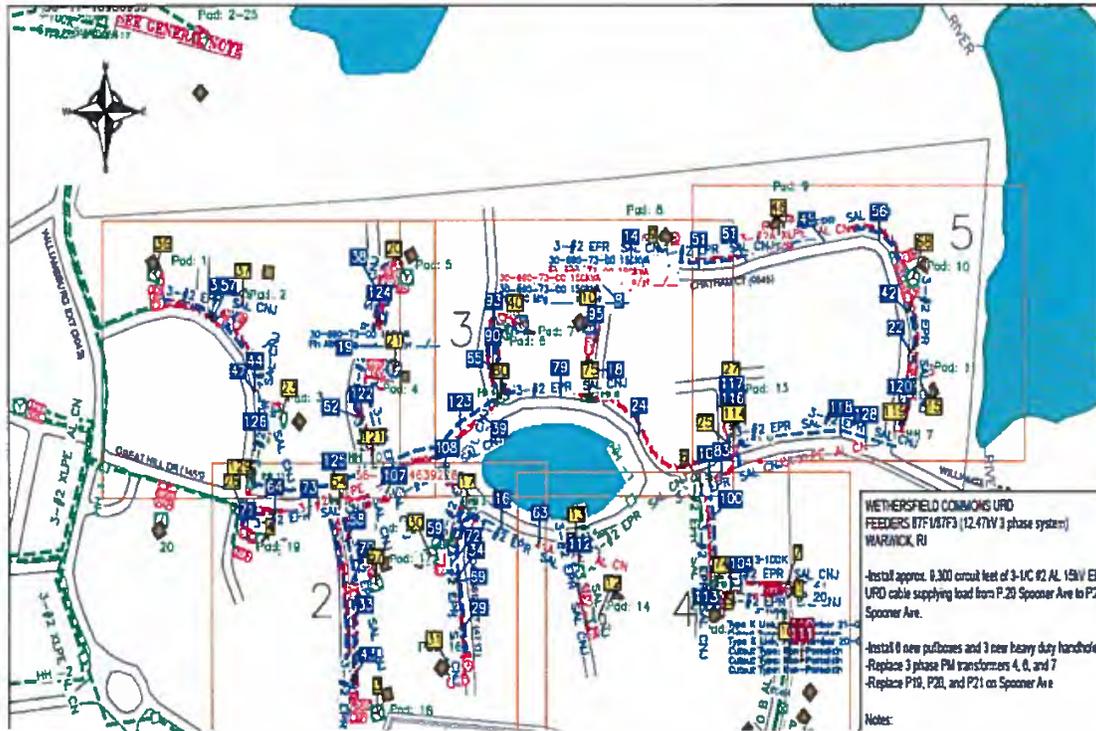
4 Decisions

I:
(a) APPROVE this paper and the investment of \$1.863M and a tolerance of +/- 10%
(b) NOTE that John P. Richard, Jr. is the Project Manager and has the approved financial delegation.
Signature..... Date..... 
Marie Jordan, Senior Vice President – Electric Process & Engineering



Resanction Request

5 Appendices



C047396

IRURD Silver Maple Drive

5360-Narragansett Electric and Gas Project Revision Detail Report

Fund Project Number: <u>C047396</u>	USSC #: -
Revision: <u>3</u>	Budget Version: <u>Default</u>
Project Title: <u>IRURD Silver Maple Drive</u>	
Project Description: Partial replacement of 1000' of three-phase and single-phase URD supplied off P. 19 Club House Road in Coventry, RI.	

Project Status: <u>Closed</u>	
Responsible Person: <u>CURLEY, JOSEPH</u>	Initiator: <u>Cerulli III, John</u>
Spending Rationale: <u>Asset Condition</u>	Funding Type: <u>P Electric Distribution Line RI</u>
Budget Class: <u>Asset Replacement</u>	
Capital by Category:	
Program Code:	
Project Risk Score: <u>36</u>	Project Complexity Score: <u>17</u>

<u>Project Schedule / Expenditures</u>					
Revision Status:	<u>Approved</u>				
Est Start Date:	<u>4/10/2013</u>	Est Complete Date:	<u>10/24/2014</u>		
Est In-Service Date:	<u>10/24/2014</u>				
TTD Actuals:	<u>\$277,797</u>	As Of:	<u>10/3/2017</u>		
Cost Breakdown	<u>Capital</u>	<u>Expense</u>	<u>Removal</u>	<u>Total</u>	<u>Credits</u>
	<u>\$219,000</u>	<u>\$9,000</u>	<u>\$72,000</u>	<u>\$300,000</u>	<u>\$0</u>

Justification / Risk Identification:
 This URD received three cable related outages in three years and meets the criteria for the URD/UCD Cable Program. Proposed work will replace all cable that has failed in last five years.

Project Scope:
 Replace 1000' of three-phase and single-phase cable from riser pole P.19 Club House Road to Vault 5 Juniper Hill Drive and to Vault 3 Silver Maple Drive, including replacing four vaults with padmount transformers.

Project Alternatives Considered:

Complete URD replacement was considered at a total project cost of \$970,000.
Entire URD is 9,700'

Additional Notes:

Re-Sanction from \$160K to \$300K. Document attached. An additional 500' of feet of cable replacement was added to the scope resulting in an addition 140 in Labor and Labor Overheads bringing the total project cost to 300K.

Related Projects:

Project Number:

Project Name:

Approvals

Line 1:	Date <u>2/20/2015 13:00:07</u>	Approver <u>curljo</u>	<u>DOA - Distribution Lev</u>
Line 2:	Date <u>2/24/2015 07:44:23</u>	Approver <u>Diconza, Glen L</u>	<u>DOA - Distribution Lev</u>
Line 3:	Date <u>2/25/2015 14:34:52</u>	Approver <u>Constable, Ryan</u>	<u>DOA - Distribution Lev</u>
Line 4:	Date <u>3/9/2015 11:22:24</u>	Approver <u>Cox, Roger D</u>	<u>DOA - Distribution Lev</u>
Line 5:	Date <u>3/12/2015 11:05:48</u>	Approver <u>LaBarre, Alan T</u>	<u>DOA - Distribution Lev</u>

*****Project Authorization is for Approved Revision Total Estimated Cost +10%*****

REDACTED - CEII Information has been Redacted

PowerPlan ----- PPGPRD Database

File Edit Subsystem Batch Admin Preferences Window Help

Projects Assets Tables CR MyPPlan Help Calc Print Win

Funding Project Estimates - Summary C047396 Current Total Authorized Amount: \$300,...

Title
Project Number

Budget Version	Default (active)
Revision	RSN Form
Revision Status	Approved
Revision No.	<input type="text" value="3"/>
Est Start Date	04/10/2013
Est Complete Date	10/24/2014
Est In Srvc Date	10/24/2014
Capital	\$219,000.00
Expense	\$9,000.00
Jobbing	\$0.00
Retirement	\$0.00
Removal	\$72,000.00
Total (excl. Ret.)	\$300,000.00
Credits	\$0.00
Net	\$300,000.00

Revision Info **Other Updates**

Revision of 3
[Find Revision](#)

Show 'Budget Only' Revisions

Spending Estimates:

Property Estimates:

Edit:

Other:

Record of 1

Change in DOA Request Form (Less than Million)

Version 9.0

Note: Fill data in the grey area and email form to **Mario Carlino** and the appropriate IP analyst.

Gas - Tracy Nguyen
Electric - Janice Flynn

* Date:	2/13/2014
* Operating Company:	The Narragansett Electric Co.
* PowerPlant Project Id:	C047396
* Project Name:	IRURD Silver Maple Drive
* Project Engineer:	Chris Montalto
* Project Manager:	John Richard

Latest Project Estimate

* Date of Latest Sanction:	4/5/2013
----------------------------	----------

Total	Capex	Opex	Removal
\$160,000	\$116,800	\$4,800	\$38,400

Revised Project Estimate

Total	Capex	Opex	Removal
\$300,000	\$219,000	\$9,000	\$72,000

Cash Flows

Previous FY	Capex	Opex	Removal
\$0			

Current FY	Capex	Opex	Removal
\$300,000	\$219,000	\$9,000	\$72,000

FY+1	Capex	Opex	Removal
\$0			

FY+2	Capex	Opex	Removal
\$0			

Customer Contribution

--

Reason for Revision

<input type="checkbox"/>	Revised forecast either exceeds or is lower than the Approved Amount - Project Still In Process
	New Project Estimated Completion Date:

<input checked="" type="checkbox"/>	Actual Spending either exceeds or is lower than the Approved Amount – Project is Complete
-------------------------------------	---

Reason for Increased Spending (Please expand the row height if box doesn't fit)

<input checked="" type="checkbox"/>	Change in Scope (Material, Labor or Other)
-------------------------------------	--

Change in DOA Request Form (Less than Million)

	Additional 500 feet of cable to be replaced.
<input type="checkbox"/>	Resource Allocation (Schedule, Delay, OT, or Contractor)
<input checked="" type="checkbox"/>	Low/High Estimate An additional 500' of feet of cable replacement was added to the scope resulting in an addition 140 in Labor and Labor Overheads bringing the total project cost to 300K.
<input checked="" type="checkbox"/>	External Forces (Permitting Requirements, Weather, Contractor Issues, etc)

In-service Dates

*Original In-service Date:
 *Revised In-service Date:

C047397

IRURD Cedarhurst.

REDACTED - CEII Information has been Redacted

PowerPlan ----- PPGPRD Database

File Edit Subsystem Batch Admin Preferences Window Help

Projects Assets Tables CR MyPPlan Help Calc Print Win

Funding Project Estimates - Summary C047397 Current Total Authorized Amount: \$575,000.00

Title
Project Number

Budget Version	No Assigned Versions
Revision	RSN Form v2
Revision Status	Approved
Revision No.	<input type="text" value="3"/>
Est Start Date	04/01/2013
Est Complete Date	10/16/2014
Est In Srvc Date	10/16/2014
Capital	\$494,500.00
Expense	\$11,500.00
Jobbing	\$0.00
Retirement	\$0.00
Removal	\$69,000.00
Total (excl. Rets.)	\$575,000.00
Credits	\$0.00
Net	\$575,000.00

Revision Info

Revision of 3

Show 'Budget Only' Revisions

Spending Estimates:

Property Estimates:

Edit:

Other:

Record of 1

5360-Narragansett Electric and Gas Project Revision Detail Report

Fund Project Number: <u>C047397</u>	USSC #: -
Revision: <u>3</u>	Budget Version:
Project Title: <u>IRURD Cedarhurst.</u>	
Project Description: Replace 400' radial URD off of P.2 Gateway Road and inject 4400' looped URD off P.3 Fishing Cove Road in North Kingstown, RI.	

Project Status: <u>Closed</u>	
Responsible Person: <u>RICHARD, JOHN</u>	Initiator: <u>Cerulli III, John</u>
Spending Rationale: <u>Asset Condition</u>	Funding Type: <u>P Electric Distribution Line RI</u>
Budget Class: <u>Asset Replacement</u>	
Capital by Category:	
Program Code:	
Project Risk Score: <u>36</u>	Project Complexity Score: <u>17</u>

Project Schedule / Expenditures

Revision Status: <u>Approved</u>					
Est Start Date: <u>4/1/2013</u>			Est Complete Date: <u>10/16/2014</u>		
Est In-Service Date: <u>10/16/2014</u>					
TTD Actuals: <u>\$547,172</u>			As Of: <u>10/3/2017</u>		
Cost Breakdown	<u>Capital</u>	<u>Expense</u>	<u>Removal</u>	<u>Total</u>	<u>Credits</u>
	<u>\$494,500</u>	<u>\$11,500</u>	<u>\$69,000</u>	<u>\$575,000</u>	<u>\$0</u>

Justification / Risk Identification:
 This URD has received three outages in three years and meets the criteria for the URD/UCD Cable Program.

Project Scope:
 Replace 400' of radial URD off of P2 Gateway Road and inject or replace 4,400' of looped URD off of P3 Fishing Cove Road. Gateway shows looped in URD print and radial in GIS, exact scope to be determined by preliminary work order to perform underground survey.

Project Alternatives Considered:

Change in DOA Request Form (Less than Million)

Version 9.0

Note: Fill data in the grey area and email form to **Mario Carlino** and the appropriate IP analyst.

Gas - Tracy Nguyen

Electric - Janice Flynn

*Date:	2/11/2015
*Operating Company:	The Narragansett Electric Co.
*PowerPlant Project Id:	C047397
*Project Name:	IRURD Cedarhurst
*Project Engineer:	Chris Montalto
*Project Manager:	John Richard

Latest Project Estimate

*Date of Latest Sanction:	12/10/2014
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Total	Capex	Opex	Removal
\$450,000	\$387,000	\$9,000	\$54,000

Revised Project Estimate

Total	Capex	Opex	Removal
\$575,000	\$494,500	\$11,500	\$69,000

Cash Flows

Previous FY	Capex	Opex	Removal
\$125,000	\$107,500	\$2,500	\$15,000

Current FY	Capex	Opex	Removal
\$450,000	\$387,000	\$9,000	\$54,000

FY+1	Capex	Opex	Removal
\$0			

FY+2	Capex	Opex	Removal
\$0			

Customer Contribution

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Reason for Revision

<input type="checkbox"/>	Revised forecast either exceeds or is lower than the Approved Amount - Project Still In Process
	New Project Estimated Completion Date:

<input checked="" type="checkbox"/>	Actual Spending either exceeds or is lower than the Approved Amount – Project is Complete
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Reason for Increased Spending (Please expand the row height if box doesn't fit)

<input type="checkbox"/>	Change in Scope (Material, Labor or Other)
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Change in DOA Request Form (Less than Million)

<input type="checkbox"/>	Resource Allocation (Schedule, Delay, OT, or Contractor) <div style="background-color: #cccccc; height: 150px;"></div>
<input checked="" type="checkbox"/>	Low/High Estimate This project was completed as an emergency due to multiple faults on the line. The original scope of this project was to inject 4400" and replace 400' of cable, however in July 2014 there were three cable faults, two of them on injected cable, so the scope was expanded to replace the entire URD. It was decided to start construction on the increased scope without it being engineered, which resulted in the STORMS estimate being considerably lower than the actual cost of the project. The total footage of cable that was replaced was 5,200' which resulted in an additional \$2,500 in materials, \$4,500 in labor and \$166,000 in contractor charges bringing the total project cost to \$575K.
<input type="checkbox"/>	External Forces (Permitting Requirements, Weather, Contractor Issues, etc) <div style="background-color: #cccccc; height: 150px;"></div>

In-service Dates

*Original In-service Date: 3/31/2014
 *Revised In-service Date: 10/16/2014

C047422

IRURD Maplewood

Partial injection was considered at an estimated cost of \$300,000. It was rejected for operational concerns regarding customer inconvenience and resulting confusing configuration of injected and replaced cables.

Additional Notes:

Related Projects:

Project Number:

Project Name:

Approvals

Line 1:	Date	<u>8/10/2016 11:29:17</u>	Approver	<u>carlim</u>	<u>USSC Approver</u>
Line 2:	Date		Approver		
Line 3:	Date		Approver		
Line 4:	Date		Approver		
Line 5:	Date		Approver		

*****Project Authorization is for Approved Revision Total Estimated Cost +10%*****

REDACTED - CEII Information has been Redacted

PowerPlan ----- PPGPRD Database

File Edit Subsystem Batch Admin Preferences Window Help

Projects Assets Tables CR MyPPlan Help Calc Print Win

Funding Project Estimates - Summary C047422 Current Total Authorized Amount: \$1,56...

Title IRURD Maplewood
Project Number C047422

Budget Version	Default (active)
Revision	v3
Revision Status	Approved
Revision No.	5
Est Start Date	04/01/2013
Est Complete Date	09/30/2017
Est In Srvc Date	06/30/2017
Capital	\$1,355,000.00
Expense	\$78,000.00
Jobbing	\$0.00
Retirement	\$0.00
Removal	\$127,000.00
Total (excl. Rets.)	\$1,560,000.00
Credits	\$0.00
Net	\$1,560,000.00

Revision Info **Other Updates**

Revision 5 of 5

[Find Revision](#)

Show 'Budget Only' Revisions

Spending Estimates:

Property Estimates:

Edit:

Other:

Record 1 of 32



Resanction Request

Title:	IRURD Maplewood	Sanction Paper #:	USSC-13-322 v3
Project #:	C047422	Sanction Type:	Resanction
Operating Company:	The Narragansett Electric Co.	Date of Request:	8/2/16
Author:	John P. Richard, Jr.	Sponsor:	Carol Sedewitz, VP of Electric Asset Management
Utility Service:	Electricity T&D	Project Manager:	John P. Richard, Jr.

1 Executive Summary

This paper requests the resanction of C047422 in the amount \$1.560M with a tolerance of +/- 10% for the purposes of Engineering, Procurement and full construction including underground cable replacement.

This sanction amount is \$1.560M broken down into:

- \$1.355M Capex
- \$0.078M Opex
- \$0.127M Removal

Note the originally requested sanction amount of \$1.337M

2 Resanction Details

2.1 Project Summary

Maplewood URD in Cumberland, RI has 1970 vintage cross link polyethylene (XLPE) direct buried cable. As part of the URD Cable program, injection was considered, but input from Operations guided the final decision to forego injection. There is approximately 4,500' of three phase cable that will be replaced and 600' of cable will be installed to create a loop scheme.

2.2 Summary of Projects

Project Number	Project Type (Elect only)	Project Title	Estimate Amount (\$M)
C047422	D-Line	IRURD Maplewood	1.560
Total			1.560



Resanction Request

2.3 Prior Sanctioning History

Previously approved sanctions are attached and listed below (Newest to Oldest).

Date	Governance Body	Sanctioned Amount	Potential Project Investment	Paper Title	Sanction Type	Paper Reference Number	Tolerance
8/2/16	USSC	\$1.337M	\$1.337M	IRURD Maplewoods	Sanction	USSC-13-322 v2	+/-10%
12/4/13	USSC	\$0.400M	\$1.002M	n/a	Sanction	USSC-13-322	+/-25%

Over / Under Expenditure Analysis

Summary Analysis (\$M)	Capex	Opex	Removal	Total
Resanction Amount	1.355M	0.078M	0.127M	1.560M
Latest Approval	1.159M	0.110M	0.068M	1.337M
Change*	0.196M	-0.032M	0.059M	0.223M

*Change = (Re-sanction – Amount Latest Approval)

2.4 Cost Summary Table

Project Number	Project Title	Project Estimate Level (%)	Spend (\$M)	Prior Yrs	Current Planning Horizon						Total	
					Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 + ¹		
C047422	IRURD Maplewood	Est Lvl (e.g. +/- 10%)	CapEx	1.164	0.191	0.000	0.000	0.000	0.000	0.000	0.000	1.355
			OpEx	0.068	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.078
			Removal	0.105	0.022	0.000	0.000	0.000	0.000	0.000	0.000	0.127
			Total	1.337	0.223	0.000	0.000	0.000	0.000	0.000	0.000	1.560
Total Project Sanction			CapEx	1.164	0.191	0.000	0.000	0.000	0.000	0.000	1.355	
			OpEx	0.068	0.010	0.000	0.000	0.000	0.000	0.000	0.078	
			Removal	0.105	0.022	0.000	0.000	0.000	0.000	0.000	0.127	
			Total	1.337	0.223	0.000	0.000	0.000	0.000	0.000	1.560	



Resanction Request

2.5 Business Plan

Business Plan Name & Period	Project included in approved Business Plan?	Over / Under Business Plan	Project Cost relative to approved Business Plan (\$)
FY17-FY21 NE Electric Distribution Business Plan	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Over <input type="radio"/> Under <input checked="" type="radio"/> N/A	\$0.000M

2.6 Drivers

2.6.1 Detailed Analysis Table

The following table indicates the major key variations that account for the difference between the original sanction amount and the requested resanction amount.

Detail Analysis (M's)	Over/Under Expenditure?	Amount
Streelight Replacement	<input checked="" type="checkbox"/> Over <input type="checkbox"/> Under	\$0.063M
Civil Change Orders	<input checked="" type="checkbox"/> Over <input type="checkbox"/> Under	\$0.091M
Capital Overheads	<input checked="" type="checkbox"/> Over <input type="checkbox"/> Under	\$0.046M
Transportation	<input checked="" type="checkbox"/> Over <input type="checkbox"/> Under	\$0.023M

2.6.2 Explanation of Key Variations

Streelight Replacement-There were existing company owned wooden pole streelights located within Maplewoods URD. Many of these wooden poles had begun to rot through to the point that they had fallen over. Fallen streetlight poles are a safety hazard and also cause streetlight outages. In April 2016, it was decided that all of the existing streetlights should be replaced to prevent future failures. The cost to replace all existing wooden streetlight poles was \$0.063M

Civil Change Orders -The civil contractor was required to dig more test pits and use more hand digging than anticipated because of the layout of existing underground



Resanction Request

utilities. Test pits and hand digging are normal safety practices when excavating in an area that contains existing underground utilities. The cost for the change orders associated with test pits and hand digging was \$.091M

Capital Overheads- The decision to replacem the existing wooden streetlights was made after the last time this project was sanctioned. The additional spend for the streetlights resulted in additional Capital Overhead charges. The additional cost of \$0.046M is a direct result of these unanticipated Capital Overhead charges.

Transportation Costs-The total transportation costs for this order exceeded the STORMS transportation estimate by \$0.23M.

2.7 If cost > approved Business Plan how will this be funded?

Reallocation of funds within the URD Rehabilitation Program portfolio will be managed by Resource Planning to meet jurisdictional, budgetary, statutory, and regulatory requirements.

2.8 Key Milestones

Milestone	Target Date: (Month/Year)
Planning Sanction	04/2013
Start Preliminary Engineering (kick-off meeting)	04/2013
Engineering Design Complete-EDC	06/2015
Construction Start	10/2015
Project Resanction	03/2016
Project Resanction	08/2016
Construction Completed-CC	06/2017
Project Closure	09/2017

2.9 Next Planned Sanction Review

Date (Month/Year)	Purpose of Sanction Review
September 2017	Closure Paper



Resanction Request

3 Statements of Support

3.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Investment Planning	Glen DiConza	Endorses relative to distribution 5-year plan or emergent work
Resource Planning	Anne Wyman	Endorses resources, cost estimate, schedule and Portfolio Alignment
Distribution Asset Management	Alan Labarre	Endorses scope, design, conformance with design standards

3.2 Reviewers

The reviewers have provided feedback on the content/language of the paper

Function	Individual
Finance	Patricia Easterly
Regulatory	Peter Zschokke
Jurisdictional	Jim Patterson
Procurement	Art Curran
Control Center	Mike Gallagher



Resanction Request

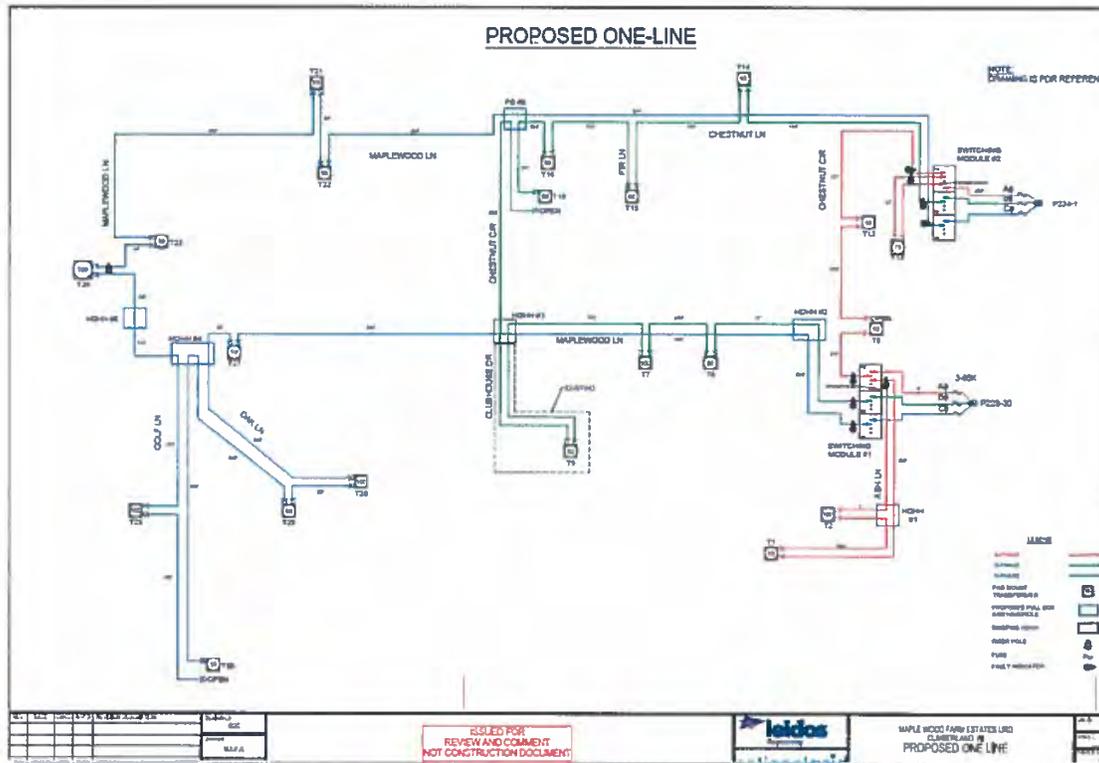
4 Decisions

I:
(a) APPROVE this paper and the investment of \$1.560M and a tolerance of +/-10%
(b) NOTE that John P. Richard, Jr. is the Project Manager and has the approved financial delegation.
Signature..... Date..... 
Christopher Kelly, Acting Senior Vice President – Electric Process & Engineering



Resanction Request

5 Appendices



C047495

DG SVC OCI Solar RI-233